United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Yuma Field Office
2555 East Gila Ridge Road
Yuma, AZ 85365
www.az.blm.gov

FINDING OF NO SIGNIFICANT IMPACT
For
EA No. AZ-050-2003-0039

The Bureau of Land Management (BLM), Yuma Field Office, has analyzed a proposal to rehabilitate approximately 475 acres of BLM-administered lands located within the Mittry Lake State Wildlife Management Area. This rehabilitation is in response to the disturbance created by the Mittry Lake Fire, which occurred on March 12, 2003. This rehabilitation process would involve the following activities: mechanical clearing, mulching, grubbing, planting/caging, fertilizing, pruning, seeding, irrigation, herbicide application, soil analysis, and improving existing California black rail habitat. This proposal and its design features, as well as a No Action Alternative, are described within the attached Environmental Assessment (EA) No. AZ050-2003-0039.

The EA is tiered to and in conformance with the *Yuma District Resource Management Plan,* as amended and its *Record of Decision* (BLM, May 1986 & February 1987) and the *Final Environmental Impact Statement Vegetation Treatment on BLM Lands in Thirteen Western States.* Any of the above referenced documents may be viewed at the Yuma Field Office during normal business hours.

This EA incorporates by reference the following: 1) *Mittry Lake Burned Area Emergency Rehabilitation Plan* (BLM, 2003), 2) *Interagency Fire Management Plan* (BLM, 1998), 3) *Draft Southwestern Willow Flycatcher Recovery Plan* (USFWS, 2001), 4) *Mittry Lake Hazard Fuels Reduction and Riparian Restoration Environmental Assessment* (BLM, 2002), 5) *Mittry Lake Wildlife Area Management Plan*, (Arizona Game and Fish Department, 1997).

The proposed action has been designed to minimize disturbance effects on the threatened/endangered American bald eagle (*Haliaeetus leucocephalus*), Yuma clapper rail (*Rallus longirostris yumanensis*), and Southwestern willow flycatcher (*Empidonax traillii extimus*), and razorback sucker (*Xyrauchen texanus)*. The BLM has informally consulted with the U.S. Fish and Wildlife Service to ensure that the proposed action would not affect these or other species listed under the Endangered Species Act. A letter of concurrence dated July 9, 2003 (AESO/SE 02-21-03-I-0343) has determined this project "may affect, not likely to adversely affect" the listed bird species and will have "no effect" on the razorback sucker.

The design features identified for the proposed action would assure that no significant adverse impacts would occur to the human environment in the following areas: Air Quality, Areas of Critical Environmental Concern, Cultural Resources, Environmental Justice, Farm Lands (Prime or Unique), Floodplain, Hazardous or Solid Waste, Native American Religious Concerns, Non-Native Invasive Species, Threatened or Endangered Species, Water Quality (Ground or Surface), Wetlands/Riparian Zones, Wild and Scenic Rivers, or Wilderness.

The proposed action does not significantly affect energy supply, distribution, and/or use and therefore a Statement of Adverse Energy Impact is not required.

On the basis of the information contained in the EA, and all other information available to me as is summarized above, it is my determination that the Proposed Action does not constitute a major Federal Action affecting the quality of the human environment. Therefore, an Environmental Impact Statement is unnecessary and will not be prepared.

_/s/ Tom Zale (for)_____ _____7/20/03_____
Gail Acheson Date
Yuma Field Manager

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Yuma Field Office
2555 East Gila Ridge Road
Yuma, AZ 85365
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Decision Record
For
Mittry Lake Emergency Stabilization and Rehabilitation
EA AZ-050-2003-0039

Decision

It is my decision to implement stabilization and rehabilitation on approximately 475 acres of BLM administered lands located within the Mittry Lake State Wildlife Management Area. This rehabilitation is in response to the disturbance created by the Mittry Lake Fire, which occurred on March 12, 2003.

This rehabilitation process will involve the following activities: mechanical clearing, mulching, grubbing, planting/caging, fertilizing, pruning, seeding, irrigation, herbicide application, soil analysis, and California black rail habitat improvement. Activities will occur within Yuma County, Arizona:

Gila and Salt River Meridian
T.6 S., R. 21 W.
secs. 30 and 31
T.7 S., R. 21 W.
secs. 5, 6, 7, 8, 18, and 19
T. 6 S., R. 22 W.
secs. 25 and 26

San Bernardino Meridian
T. 15 S., R. 24 E.
secs. 16, 17, 20, and 21

Rational for Decision

The rational for my decision can be supported with the *Mittry Lake Emergency Stabilization and Rehabilitation Environmental Assessment* (EA AZ-050-2003-0039) and the Finding of No Significant Impact. This decision is in conformance with the *Yuma District Resource Management Plan*, as amended and its Record of Decision (BLM, May 1986 & February 1987).

The purpose of this rehabilitation project is to reestablish stands of cottonwood *(Populus fremontii*), willow (*Salix sp.*), and mesquite (*Prosopis sp.*), which were historically the main components of the climax forest in the Colorado River bottomlands, while retaining existing fragments of these plant communities that are regenerating. Native vegetation along the lower Colorado River is considered to be rare and worth special protection. The construction of Laguna Dam in 1907, Hoover, Parker, and Imperial Dams in the 1930's nearly eliminated annual spring floods. Most native riparian vegetation depends on these periodic floods for regeneration. Soil and water salinity levels have risen as a result of irrigation practices and evaporation from dams. This has allowed introduction and spread of non-native tamarisk (*Tamarix ramosissima*). Most native species are not very salt tolerant, whereas tamarisk thrives under high salinity. It was estimated that as of 1986, 40 percent of the riparian area along the lower Colorado River (from Davis Dam to Mexico) was a pure stand of tamarisk, 43 percent consisted of native plants and tamarisk. Only 0.7 percent could be considered mature cottonwood and willow habitats (U.S. Fish and Wildlife Service 1994).

Wildlife associated with mature stands of cottonwood and willow, have also declined along the lower Colorado River. The southwestern willow flycatcher (SWFL)(*Empidonax traillii extimus*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) and the Arizona Bell's vereo (*Vireo bellii*

arizonae), along with 200 other neotropical migrant species are dependent on this vegetation type for nesting and foraging habitat. These three species have experienced declines in numbers over the last decade. The elf owl (*Micrathene whitneyi*), which is currently a California state designated endangered species, depends on large trees for nesting on the lower Colorado River.

The BLM has informally consulted with the U.S. Fish and Wildlife Service to ensure that these actions would not affect these or other species listed under the Endangered Species Act. A letter of concurrence dated July 9, 2003 (AESO/SE 02-21-03-I-0343) has determined this project "may affect, not likely to adversely affect" the listed bird species and will have "no effect" on razorback sucker.

Management and Mitigation Consideration

1. Any mechanized project work will be completed between September 15th and March 15th to avoid activity in the riparian corridor during the breeding and nesting seasons for Southwestern willow flycatcher and Yuma clapper rail.
2. Resprouting native vegetation (cottonwood, willow, and mesquite) will not be disturbed where possible within the project areas.
3. Herbicide application will be restricted to the use of Pathfinder II$_{TM}$ basal bark applications to tamarisk root sprouts and Rodeo$_{TM}$ applications on tamarisk, phragmites (*Phragmites communis*), and Ravenna grass (*Erianthus ravenna*) where surface moisture is present. A spill prevention plan is attached to the EA.
4. All stabilization and rehabilitation activities will avoid known archeological sites and observe a minimum 15-meter buffer from archeological site boundaries.

Monitoring

Yuma Field Office staff will supervise the various phases of this project. The work associated with this project will largely be contracted to a variety of private firms. Contracting officer's representatives and project inspectors appointed to these contracts will ensure that the terms and conditions of the contracted work are met.

The Proposed Action will have no effect on the President's Energy Policy and a Statement of Adverse Energy Impact is not required.

_/s/Tom Zale (for)
Gail Acheson Date___7/28/03_____
Yuma Field Manager

BUREAU OF LAND MANAGEMENT
YUMA FIELD OFFICE
2555 E. Gila Ridge Rd.
Yuma, AZ 85365

ENVIRONMENTAL ASSESSMENT (EA) FORM

AZ 050-2003-0039 **Case/Project No.: NA**

PROJECT NAME: Mittry Lake Rehabilitation

TECHNICAL REVIEW:

(✓)	Program	Reviewer	Signature	Date
✓	Air Quality	Roger Oyler	/s/ Roger Oyler	7/24/03
	ACEC			
✓	Botanical including T&E Spp.	Karen Reichhardt	/s/ Karen Reichhardt	7/23/03
	Communications (Dispatch)			
✓	Cultural/Paleontology	Sandra Arnold	/s/ Sandra Arnold	7/24/03
	Energy Policy			
	Environmental Justice			
	Farmlands (Prime & Unique)			
✓	Fuels and Fire Management	Mike Behrens	/s/ Mike Behrens	7/24/03
	Floodplain			
✓	Hazardous Material	Lowell Jeffcoat	/s/ Lowell Jeffcoat	7/28/03
✓	Invasive & Non-Native Spp.	Jennifer Green	/s/ Jennifer Green	7/23/03
	Lands/Realty			
✓	Land Law Examiner	Candy Holzer	/s/ Candy Holzer	7/24/03
	Law Enforcement			
	Minerals			
	Native American Religious Concerns			
	Operations			
✓	Range Management	Roger Oyler	/s/ Roger Oyler	7/24/03
✓	Recreation	Mark Lowens	/s/ Mark Lowens	7/24/03
✓	Soils	Roger Oyler	/s/ Roger Oyler	7/24/03
	Surface Protection			
✓	Visual Resources	For Ron Morfin	/s/ Merv Boyd	7/24/03
	Water Rights			
	Water Quality (Surface & Ground)			
	Wetlands/Riparian Zones			
	Wild & Scenic Rivers			
	Wilderness			
	Wild Horse & Burro			
✓	Wildlife including T&E Spp.	Jeff Young	/s/ Jeff Young	7/24/03
✓	Wildlife including T&E Spp.	Fred Wong	/s/ Fred Wong	7/24/03

Prepared by: __/s/ Dave Repass _____ Date: _____7/25/03__
Dave Repass
Fire Biologist

Reviewed by: _/s/ Patricia M. Bailey _____ Date: _____7/28/03___
Patricia M. Bailey
Planning & Environmental Coordinator

Reviewed by: __/s/_ Lester Tisino _____ Date: ____7/25/03 ____
Lester Tisino
Fire Management Officer

ENVIRONMENTAL ASSESSMENT

Mittry Lake Emergency Stabilization and Rehabilitation

EA-AZ-050-2003-0039

Bureau of Land Management
Yuma Field Office
2555 E. Gila Ridge Road
Yuma, AZ 85365

July 2003

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I. PURPOSE AND NEED FOR PROPOSED ACTION

A. Background

On March 12, 2003, the Mittry Lake Fire was discovered. The fire was human caused and spread rapidly throughout both marsh and upland fuels. Lack of access created a high safety risk for firefighters. Indirect methods of attack were used to combat the rapidly spreading fire. The fire was controlled on March 16, 2003, at approximately 1313 acres. The fire consumed approximately 27.4 acres of cottonwood *(Populus fremontii*)/willow (*Salix sp.*), 225.2 acres of mesquite (*Prosopis sp.*) bosques, 298.8 acres of emergent marsh vegetation, and 545.8 acres of tamarisk (*Tamarix ramosissima*). Remaining acres include unburned patches or open water, or previously burned from a prescribed fire.

Fire history data for the Mittry Lake area has been recorded in GIS information. Fire occurrence history in the Mittry Lake area starts in 1980. A Burned Area Emergency Rehabilitation (BAER) plan was written for the Trader Horn fire and cottonwood/willows were planted. A BAER plan was also prepared for the Mittry fire of 1997. The Lower Colorado fire return interval is at about every three years with large fires at about every 7 years.

Table – 1. Mittry Lake area fire history

Name	Acres	Year
Dump	0.1	1980
Senators	38	1980
Generator	0.1	1981
Oasis	60	1982
Hopkins	0.1	1983
Hidden Shore Road	0.1	1994
Traider Horn	70	1996

Yuma Field Office (YFO), Bureau of Land Management (BLM) proposes to rehabilitate the burned area by replanting with riparian species native to the Sonoran desert region. Rehabilitation would help to protect the remaining mesquite bosques and removing non-native invasive tamarisk and planting native species. One of the purposes of the rehabilitation is to reestablish cottonwood and willow, which were historically the main components of the climax forest in the Colorado River bottomlands. Another purpose would be to retain remaining native species while removing invasive species. The Proposed Action is located approximately 20 miles NE of Yuma, Arizona (Yuma County).

Table – 2. Location of proposed action

Meridian	Township	Range	Section(s)	Subdivision(s)	Acres
Gila Salt River	T. 6 S.	R. 21 W.	30,31		
	T. 7 S.	R. 21 W.	5,6,7,8,18,19		
	T. 6 S.	R. 22 W.	25,26		
San Bernardino	T.15 S.	R. 24 E.	16,17,20,21		
					1,313
UTM N/A N E		LATITUDE N 32 ^{o} 51' 39"		LONGITUDE W 114^{o} 26' 55"	

Native vegetation along the lower Colorado River is considered to be rare and worth special protection. The construction of Laguna Dam in 1907, Hoover, Parker, and Imperial Dams in the 1930's nearly eliminated annual spring floods. Most native riparian vegetation depends on these periodic floods for regeneration. Soil and water salinity levels have risen as a result of irrigation practices and evaporation from dams. This has allowed introduction and spread of non-native tamarisk. Most native species are not very salt tolerant, whereas tamarisk thrives under high salinity. It was estimated that as of 1986, 40 percent of the riparian area along the lower Colorado River (from Davis Dam to Mexico) was a pure stand of tamarisk, 43 percent consisted of native plants and tamarisk. Only 0.7 percent could be considered mature cottonwood and willow habitats (U.S. Fish and Wildlife Service 1994).

Wildlife associated with mature stands of cottonwood and willow, have also declined along the lower Colorado River. The southwestern willow flycatcher (SWFL)(*Empidonax traillii extimus*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) and the Arizona Bell's vereo (*Vireo bellii arizonae*), along with 200 other neotropical migrant species are dependent on this vegetation type for nesting and foraging habitat. These three species have experienced declines in numbers over the last decade. The elf owl (*Micrathene whitneyi*), which is currently a California state designated endangered species, depends on large trees for nesting on the lower Colorado River.

B. Conformance with Land Use Plans

The proposed project is in conformance with the *Yuma District Resource Management Plan* (RMP) and its Record of Decision, as amended (May 1986 & February 1987). The RMP designates all of the remaining riparian areas along the lower Colorado River to be managed as priority wildlife areas. The RMP discourages the introduction of "exotic" species on public lands. Reduction of the exotic tamarisk would help fulfill this directive. Additionally, wildlife habitat improvement projects would be implemented where necessary to stabilize or improve unsatisfactory or declining wildlife habitat

condition. In conformance with the decision regarding threatened, sensitive, and endangered species habitat, the proposed project will provide for the conservation of federally listed threatened and endangered wildlife species and their habitat, as well as other special status species (BLM 1987).

C. Related EISs, EAs, and other Relevant Documents

Final Environmental Impact Statement Vegetation Treatment on BLM Lands in Thirteen Western States (BLM, 1991), which describes and analyzes the impacts of treatment to vegetation by method of: manual, mechanical, biological, prescribed burning, and chemical.

Mittry Lake fire rehabilitation would fall under the Arizona Riparian-Wetland Area Management Strategy, 1990. It would also follow the BLM's commitment to the Partners in Flight Program, which calls for restoring riparian habitat for neotropical migratory birds along the Colorado River in California and Arizona.

Mittry Lake Burned Area Emergency Rehabilitation Plan (BLM, 2003) is a rapid assessment of resources damaged by wildland fire, rehabilitation strategy, and financial estimate to implement proposed treatments.

The U.S. Fish and Wildlife Service's Southwestern Willow Flycatcher Recovery Plan seeks in part to protect, reestablish, mimic, and/or mitigate for the loss of the natural processes that establish, maintain, and recycle riparian ecosystems. Additionally this plan advocates management of exotic plant species and continuing research to refine management practices and knowledge of ecology (U.S. Fish and Wildlife Service 2001).

Under the Mittry Lake Wildlife Area Management Plan, (Arizona Game and Fish Department 1997) management emphasis placed on the floodplain zone includes the following directives:

1. Establish native riparian habitats to provide nesting and roosting habitat for herons, egrets, raptors, neotropical migrants, and other riparian obligate species.

2. Encourage and enhance upland vegetation to benefit small game, primarily mourning doves (*Zenaida macroura*), white-wing doves (*Zenaida asiatica*), Gambel quail (*Callipepla gambelii*).

3. Regulate recreational use in accordance with wildlife management goals, while continuing to provide quality recreation opportunities into the future.

D. Scope of Environmental Assessment

Two scoping meetings were held regarding the proposed action. Scoping meetings included discussions concerning site selection, suitable habitat for SWFL, soil analysis, irrigation delivery, planting design, and vegetative mapping. Participants included specialists from: Yuma Field Office – BLM, Bureau of Reclamation (BR) Yuma Area

Office (YAO), and Arizona Game and Fish Department (AGFD), Region IV.

E. Permits, Licenses, and Entitlements Necessary to Implement the Proposed Action

The proposed action would be covered under the Army Corps of Engineers nationwide permit No. 27 "Stream and Wetland Restoration Activities".

II. ALTERNATIVES INCLUDING THE PROPOSED ACTION

A. Proposed Action Alternative

YFO proposes to rehabilitate approximately 475 acres of the 1313 acres that were burned by using a variety of the following activities: mechanical clearing, mulching, grubbing, planting/caging, fertilizing, pruning, seeding, irrigation, herbicide application, soil analysis, and improving existing California black rail habitat. Interpretive signage would eventually be added to the site.

Practices Common to All Proposed Actions

Contractors would be required to follow OSHA regulations.

To reduce the likelihood of other invasive species becoming established, precautions including high-pressure cleaning would be taken to assure that all equipment is clean of mud, dirt, and plant parts prior to moving equipment onto the proposed project area.

Federal agencies are required to consider the effects of their undertakings on cultural resources pursuant to the National Historic Preservation Act (NHPA) and applicable regulations (36 CFR 800). In Arizona, BLM also follows a protocol for managing cultural resources that was developed in partnership with the Arizona State Historic Preservation Officer. The proposed action takes cultural resources into account by eliminating surface disturbing activities from National Register eligible archeological or historic sites.

Contractors and workers would be briefed before entering the work site and would be required to follow cultural resource stipulations in the contract. Cultural resource stipulations would include the provision that all work would be stopped at once upon discovery of any cultural resources and the BLM Yuma Field Office Archaeologist would be notified immediately.

Table – 3.Treatment acreage

Unit #	Mechanical Clearing	Mulching	Grubbing	Planting	Seeding	Herbicide
Unit A	191	191	191	0	75	191
Unit B	132	132	132	132	0	132
Unit C	0	0	0	5	6	11
Unit D	0	0	0	27	0	27
Unit E	0	0	0	0	0	19
Total	**323**	**323**	**323**	**164**	**81**	**380**

1. Mechanical Removal

An area of 323 acres would be cleared of both live and dead non-native vegetation within designated sites of the project area. All trees, shrubs, and roots would be grubbed to a minimum depth of six inches and be uniformly shredded. All shredded materials would be mechanically incorporated into the top six inches of soil. No mounds, ridges, or furrows greater than six inches in height would remain and the surface would be free of excessive amounts of debris. The natural topography would be maintained as to preserve the existing hydrologic functions of the site.

An estimated 300 acres of mesquite bosque and remnant mesquite bosque vegetation class would be cleared of tamarisk mechanically. Mesquite patches would have a band of tamarisk removed around designated groups to reduce competition to regenerating mesquite. These activities can all be accomplished by the use of heavy machinery.

Berms would be constructed along the perimeter of the units to assist with irrigation and to minimize wind erosion. Berms would not be placed in wetland habitat. Berms would be 2 feet in height and not greater than 5 feet in width.

All phases of mechanical treatment would occur from September 15th to March 15th to avoid southwestern willow flycatcher (SWFL) and Yuma clapper rail (YCR) breeding seasons.

Native vegetation would be avoided where possible.

2. Planting and Caging

The following native plants which are common to the area would be planted: Fremont's cottonwood (*Populus fremontii*), Gooding's willow (*Salix gooddingii*), coyote willow (*Salix exigua*), seep willow (*Baccharis salicifolia*), desert willow (*Chilopsis linearis*), honey mesquite (*Prosopis glandulosa*), screwbean mesquite (*Prosopis pubescens).* Holes for the potted plants and tree poles would be deep enough to have root contact with the saturated ground water zone. A Bobcat® or similar type of machine with an auger could accomplish this work. Caging would be done on treatment areas that are prone to herbivore browsing. If mortality occurs, the area would be replanted.

3. Fertilization/Soil Amendments

Planted vegetation may be fertilized to encourage growth. Types of applications may include broadcast, added to irrigation waters, root dip, or incorporated with planting. Fertilizer treatment would take place in minimal amounts so that no additional nutrients enter the Colorado River. Other amendments such as salinity reducing amendments may be added to improve the quality of the soil. All amendments would be applied at the labeled rate. Amendments would be placed directly to the soils so that they do not have a detrimental effect to water quality

4. Pruning

Structural diversity would be encouraged by removal of side or top branches of individual cottonwood or willow trees. The resulting cuttings could be a source for future plantings.

5. Seeding

A designated area approximately 81 acres would be seeded to reintroduce native plant species and control expansion of invasive species. Species selection may include, but are not limited to: quailbush (*Atriplex lentiformis*), four-wing saltbush (*Atriplex canescens*), desert saltbush (*Atriplex polycarpa*), and pickleweed (*Allenrolfea occidentalis*). This would be accomplished by pedestrian broadcast seeders, and all terrain vehicle pulled seeders.

6. Irrigation

Supplemental irrigation systems may be developed to help improve growth of planted stock. Several methods of irrigation, including drip and flood may be used. Diversion water would be obtained through BLM water rights and ordered on an annual basis as needed. Water source for irrigation would come from the existing Gila Main canal and/or the Mittry Lake inlet canal. Both irrigation types may require a mechanized pump system.

Drip Irrigation: Drip irrigation would employ a system of supply hoses and emitters to each individual plant. This type of irrigation would require a large amount of material and labor to set up the system and troubleshoot leaks and assorted malfunctions. Labor would also be required to run a pump to supply water to the system. The pump would obtain water from the supply channel.

***Flood Irrigation/Leaching*:** Flood irrigation would be accomplished by using a system of pumps and irrigation lines to the planting sites. Flood irrigation could also be accomplished by constructing a concrete supply ditch and associated check gates. Flood irrigation could also occur by opening the check gates on the YPG slough. Berms may be developed along the edges of the planting areas to retain irrigation waters, allowing them to slowly percolate through the soils.

7. Herbicide Use and Application

Re-sprouts of tamarisk, phragmites, and Ravenna grass (*Erianthus ravennae*) would be treated with the herbicide Garlon 4 (triclopyr), Garlon 3, Pathfinder II, Arsenal (imazapyr), or Roundup (glyphosate). If necessary, herbicides would be applied with a POE Nonylphenols/Pro-spreader activator. An approved Pesticide Use Proposal would be required and obtained before application of herbicides and inserted upon completion into Appendix F. A certified applicator would complete this work. Methods of herbicide application include foliar spray, basal bark, and cut stump. During the southwestern willow flycatcher (SWFL) and Yuma clapper rail (YCR) breeding season (March 15th to September 15th), the herbicide would be applied manually.

ATVs with tank and sprayer would be allowed to apply herbicide outside the breeding seasons of SWFL and YCR. Technique would be determined by tree diameter, site location, and environmental conditions. Herbicide treatment may be repeated on an annual basis if tamarisk and phragmites persist. Herbicides would be applied and disposed of following labeled instructions. A Spill Contingency Plan is included (Appendix G) to address actions in the event of an accidental chemical spill. Water quality would be insured by following a water quality monitoring plan (Appendix K). The project would not generate any hazardous wastes.

8. Soil Analysis

Soil analysis would be performed across the planting areas to investigate soil quality. Small holes would be augered across the project site to extract soil samples. Ground water monitoring wells may also be installed at several locations across the site.

9. California Black Rail Habitat Construction

Five acres of California black rail habitat would be created. It would have the added benefit of reducing wildfire fuel loads by replacing the existing tamarisk monotype with 3-square bulrush. It would be located along the east side of the inlet canal at the north end of Mittry Lake, and west of the cattail marsh. Vegetation in the area is primarily tamarisk that burned during the Mittry Lake fire.

The area would be leveled and sloped gradually from the canal to the marsh. Gated PVC pipe laid along the canal would be used to distribute water from the canal, which would trickle through the project area and into the marsh. Some trenching would occur to place the gated PVC pipe. This project would only divert the point of release and would not require additional water.

10. Monitoring

Monitoring would be determined by a cooperative wildlife management action of the Arizona Game and Fish Department, Bureau of Land Management, and Bureau of Reclamation. Remote sensing imaging, invasive plant monitoring, and tree growth monitoring would take place on treatment areas. These efforts would determine the effectiveness of herbicide application, planting procedures, and overall ecosystem recovery.

B. No Action Alternative

Under the no action alternative, the proposed action would not occur. The native species would not be replanted and tamarisk would continue to occupy a large portion of the burned area. Some native species would persist but at low populations and would ultimately be taken over by tamarisk. The Mittry Lake Wildlife area would continue to be dominated by hazardous fuel, which would lead to additional fires. High fire potential would continue to threaten the riparian corridor, leading to further degradation of wildlife habitat.

III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The following table summarizes potential impacts to various elements of the human environment including the "critical elements" listed in BLM Manual H-1790-1, Appendix 5, as amended. Those elements not present or not affected by the proposed action are checked "No." In addition to the critical elements of the human environment as identified by BLM, additional environmental concerns have been identified as being potentially impacted by the project alternatives and therefore are discussed in the text of this section.

Table – 4. Critical elements

Critical Element	Affected		Critical Element	Affected	
	Yes	No		Yes	No
Air Quality (CAA, 1955)	X		Rangeland Health Standards		X
ACEC's (FLPMA, 1976)		X	T & E Species (ESA, 1973)	X	
Cultural Resources	X		Visual Resources	X	
Environmental Justice (EO-12898)		X	Waste, Hazardous or Solid (RCRA, 1976; CERCLA, 1980)		X
Farmland, Prime or Unique (SMARA, 1977)		X	Water Quality, Surface & Ground (SDWA, 1974)	X	
Floodplains (EO 11988)	X		Wetlands/Riparian Zones (EO 11990)	X	
Invasive, Non-native Species (EO 13112)	X		Wild and Scenic Rivers (W&SRA, 1968)		X
Native American Concerns (AIRFA, 1978)		X	Wilderness (FLPMA, 1976; WA, 1964)		X

A. Topography and Soils

The Mittry Lake Fire Rehabilitation project is proposed to take place on the banks and uplands surrounding Mittry Lake. Topography of the area is nearly level. Soil classification is 27-Salorthids. The description of these soils is as follows: these deep, poorly drained, strongly saline soils are on flood plains of the Gila and Colorado Rivers. The soils formed in alluvial deposits. Elevations range from 100 to 600 feet. The average annual precipitation ranges from 2 to 4 inches, the average annual air temperature ranges from 72 to 76 degrees F, and the average frost-free period ranges from 250 to 325 days.

Typically, the surface layer is stratified light brown, light yellowish brown and brown silt, loam, silty clay loam and clay about 7 inches thick. Below this to a depth of 60 inches or more are highly stratified pink, light brown and pale brown silt loam, silty clay loam and clay. Included with these soils in mapping are small areas of Indio silt loam, strongly saline; Gadsden clay; Lagunita loamy sand and Vint loamy fine sand. These soils have good potential for open land and wetland wildlife habitat.

Due to the effects of salts, these soils tend to be very floury on the surface and subject to wind erosion. The ash from the fire will add additional salts to the soil surface. While there is minimal potential for water erosion, wind erosion is possible.

The proposed project area is a floodplain characterized by alluvial soils, which are nearly level, well drained, clay soils having periodic inclusions of more gravelly, well-drained soils. The area was surveyed between 1972-1977 (Soil Conservation Service, 1980). Three soil types are present. These are: Holtville clay, Indio silt loam, and Salorthids. Dredge spoil from the Colorado River also exists on portions of the site and adjacent lands. The U.S. Bureau of Reclamation deposited dredged material during dredging operations at Laguna Dam.

1. Effects of Proposed Action

Mechanical: The action of bulldozers, front-end loaders, mulchers, and other heavy equipment would disturb soils over the entire proposed project area. Potential for erosion would exist for a short time during the project. Mulched material and wind erosion control structures would be created to decrease the loss of topsoil. Treatments would possibly increase organic content of soils. Minor compaction may occur.

Planting and Caging: Native vegetation would help in reintroducing normal soil cycling. Plantings of trees and shrubs would also decrease the potential for erosion.

Seeding: Native plants would help in reintroducing normal soil cycling. Seeding of shrubs would also decrease the potential for erosion. The reintroduction of *Atriplex* and other salt loving species may have soil remediation effects.

Irrigation: Saturation of soils would help to flush salts or force salts down below root zone. This could possibly affect the salinity of Mittry Lake. Erosion due to irrigation would be minimal due to berms and other contouring features that would be constructed around the planted areas.

Herbicide Application/Fertilization/Soil Amendments: Fertilization and other soil modifications would increase productivity of the planted and seeded areas. Herbicide application would affect the soil surface for a short period of time before it would break down and become chemically neutral.

Garlon and Rodeo/Aquamaster herbicides decompose rapidly in sunlight and would be inactive on the soil in a few hours after application. The half-life persistence for Rodeo/Aquamaster is 1.8 to 130 days, and Garlon has a similar persistence. The major degradation mechanism is microbial breakdown.

Garlon 4 should not affect neighboring plants and decomposes rapidly after application. (Neill, 1990).

California Black Rail Habitat Construction: A portion of the proposed project would strive to create saturated soils with the site quality specific for the growth of three-square bulrush (*Scirpus olneyi*). Erosion would most likely occur on a small area adjacent to the inlet on the 5-acre area between the canal and the shoreline of Mittry Lake.

Monitoring and soil analysis would have no affects to soils.

2. Effect of No Action

No soil would be disturbed as a result of this alternative. Tamarisk would grow back rapidly and out-compete native vegetation. Soils would be likely to increase in salinity as the result of tamarisk dominance.

B. Surface and Ground Water Quality

The proposed project area is located on the alluvial floodplain, which surrounds Mittry Lake and the lower Colorado River old channel above Laguna Dam. Depth to groundwater is variable at the site depending on soil type. Data collection regarding specific depth to groundwater is a component of the proposed action. The source of groundwater is the Colorado River aquifer. The Gila Gravity Main Canal also supplies water through seepage into the marsh. These seeps act like springs, creating small rivulets as the water moves towards lower elevation into the marsh. The Bureau of Reclamation tests water quality for this reach of river regularly.

1. Effects of Proposed Action

Water quality would be insured by following a water quality monitoring plan (Appendix K).

Mechanical: Water quality would not be changed as a result of mechanical treatment at the site.

Planting and Caging: Evapotranspiration and facultative use would occur but at a different rate than the dense stands of tamarisk. Planting densities would be less than the resultant densities of the tamarisk.

Seeding: Same affects as planting.

Herbicide Application/Fertilization/Soil Amendments: The addition of fertilizer and other soil amendments to the proposed project area has a slight potential to increase the nutrient load in Mittry Lake.

Irrigation: Water used for flood irrigation would be ordered as part of BLM's annual water right, and would not have any effect on the quantity of groundwater. The affects of the seepage into the marsh from the Gila Main gravity canal would be carefully monitored to make sure no changes occur because of the proposed action. Salinity in Mittry Lake may increase.

California Black Rail Habitat Construction: Ground water table would increase at this small section at the northwest part of Mittry Lake. Soil analysis and monitoring would have negligible affects, if any to surface water and/or groundwater.

2. Effects of No Action

Surface water would not be affected. Groundwater is likely to further recede due to the high use from tamarisk. Salinity levels may continue to increase.

C. Vegetation

The burned area consists of: marshlands, cottonwood/ willow, mesquite bosque, and other associated lower Colorado River basin vegetation community types. These plant communities are arranged in a gradation pattern across the burned landscape defined by the soil moisture gradient communities based upon elevation above the river basin, soil characteristics and groundwater availability. The elevations within the burn area range from 160 to 180 feet Mean Sea Level (MSL).

Vegetation communities were severely impacted by this fire. High temperatures, low relative humidity and sustained record drought conditions resulted in severe fire effects to vegetation. Agency and partner agency personnel and other publics expressed concerns regarding impacts to native vegetation as a result of the fire. Native vegetation is high quality wildlife habitat.

Table 5. Mittry Lake fire severity

Vegetation Types	Unburned (acres)	0-25% burned (acres)	26-50% burned (acres)	50-75% burned (acres)	76% + burned (acres)	Total acres
Cottonwood / Willow Riparian Forest	-	-	-	-	27.4	27.4
Tamarisk – Cottonwood / Willow Riparian Forest Remnant	-	49.3	-	-	92.6	141.9
Mesquite Bosque	67.2	6.9	6.1	34.5	110.5	225.2
Tamarisk – Mesquite Bosque Remnant	55.6	127.1	-	41.1	182.8	406.6
Upland Shrub – Arrow Weed	-	-	-	-	44.9	44.9
Upland Shrub – *Atriplex*	2.5	-	-	-	2.5	5
Upland Shrub – Creosote bush	-	7.7	-	-	-	7.7
Marsh	9	-	-	-	298.8	307.8
Sparse Vegetation	6.1	-	-	-	-	6.1
ACRES AND % TOTALS	**140.4**	**191**	**6.1**	**75.6**	**759.5**	**1172.6**

1. Effects of Proposed Action

Mechanical: Non-native vegetation in the proposed project area would be disturbed or removed. If any live cottonwood, willow, or mesquite are discovered during proposed project operations, this vegetation would be avoided when possible. Agency personnel would survey the project area and flag these species to minimize disturbance during the proposed rehabilitation project. Native understory vegetation such as arrowweed, quailbush, and minimal amounts of cattail and bullrush would be disturbed, but is likely to regenerate in time due to seed and vegetative dispersal.

Planting and Caging: Planting native riparian vegetation would augment the structural complexity of habitat and generally enhance ecological diversity (U.S. Fish and Wildlife Service2001). Tamarisk reestablishment would be inhibited by competition from planted vegetation. The new plant community would become more fire resistant.

Seeding: The reintroduction of *Atriplex* and other halophytic (salt loving) species may have soil remediation effects for the future colonization of other successional riparian species. *Atriplex* species are also seen to be fire retardant which would provide some fire protection to the project area.

Irrigation: Native and non-native species alike would benefit highly from a source of water independent of the hydrologic functioning of Mittry Lake. Rehabilitation and revegetation projects in the past two decades have found that irrigation is key to producing healthy riparian vegetation (US BR 1998).

Herbicide Application/Fertilization/Soil Amendments: Specific targeting of tamarisk would decrease the amounts of this highly competitive plant. The reduction in competition would increase the probability of the establishment of native trees, such as cottonwood and willow. All vegetation types would benefit from fertilization. Soil amendments would help to decrease salts and other harmful soil chemicals that may harm the growth rates of cottonwood and willow trees.

Unwanted non-native vegetation such as tamarisk in the general vicinity would be removed from the site on a periodic basis for the next several years.

California Black Rail Habitat Construction: The creation of a small-scale shallow wetland would help to increase vegetation diversity across Mittry Lake. A small patch of emergent vegetation between rehabilitated riparian forest and tamarisk monocultures would serve as a fuel break protecting surrounding vegetation from fire.

Soil analysis and monitoring would have negligible affects, if any, to vegetation.

2. Effects of No Action

Fire adapted tamarisk would resprout and dominate the burned area excluding recruitment of native species. Tamarisk, a hazardous fuel, would return and pose a fire threat to the Mittry Lake Wildlife Area. Vegetation diversity would be low.

D. Wildlife

Wildlife information for this assessment is based on a review of relevant literature, Arizona Game and Fish Department (AGFD) survey information, and sighting information from the AGFD Heritage Data Management System database. Ground reconnaissance was conducted on April 10, 2003. Direct evidence of several bird, mammal and reptile species was recorded on previous field visits within the project vicinity. Appendix E lists animals that could potentially occur in the proposed project area. This list is based on the overlap among animal species that occur in tamarisk habitat (Hunter and others 1985; Brown and Trosset 1989; Brown 1992 Ellis 1995; Ellis and others 1997) and animals that occur in the Yuma Field Office (Bird, Reptile and Mammal Checklists of Yuma District).

Native vegetation provides better quality and more complex structure for wildlife. Many studies (Anderson and others 1977; Cohan et al. 1979, cited in Dudley 2000; Anderson and Ohmart 1985; Schroeder 1993, cited in Dudley 2000) have found higher bird species diversity and abundance in native cottonwood, willow, and mesquite stands compared to tamarisk stands. For example in the Lower Colorado River Valley, Anderson and others (1977) found 40 bird species in cottonwood-willow habitat compared to only 19 bird species in a monotypic tamarisk stand during March and April of 1976. Similarly in the Mojave Desert, Schroeder (1993), cited in Dudley (2000), found twice the bird abundance in cottonwood-willow-mesquite habitat compared to tamarisk habitat. Ellis (1995) found bird species unique only to native vegetation relative to tamarisk habitat.

Birds are not the only animals that have higher abundance and diversity in native vegetation compared to tamarisk. Insects (Neill 1985 cited in Tomaso 1988; Dudley 2000), reptiles (Jakle and Gatz 1985 cited in Dudley 2000), and mammals (Anderson and Ohmart 1985) all have higher diversity or abundance in native habitat relative to tamarisk habitat.

1. Effects of Proposed Action

Mechanical: Wildlife in the general vicinity would be disturbed from the operation of heavy equipment during the operation period. While removing tamarisk and decadent vegetation heavy equipment could crush, bury or kill smaller, less mobile animals such as rodents, lizards, or snakes.

The mesquite-bosque protection swaths would be cleared completely, therefore reducing the value of these areas to wildlife in the short term. The tamarisk, remnant cottonwood-willow areas would also undergo prolonged disturbance from heavy machinery, impacting wildlife using the decadent and resprouting tamarisk.

Planting and Caging: Despite the short-term negative impacts to wildlife in the proposed project area, wildlife should benefit in the long-term after successfully planting the project area to promote establishment of native cottonwood, willow, mesquite and other native vegetation.

If proposed native revegetation efforts fail, tamarisk should re-establish in the proposed project area, and animals from surrounding tamarisk habitat should re-populate the proposed project area to levels similar to those before treatment. Thus, the only consequences of failure would be limited to short-term effects. In conclusion, negative, short-term effects (potentially killing and displacing individuals) would be overshadowed by positive, long-term effects (increased wildlife abundance and diversity). Risk of irreversible effects of proposed actions is low because wildlife abundance and diversity should return to pre-treatment levels if revegetation efforts fail.

Seeding: Same impacts as planting.

Herbicide Application/Fertilization/Soil Amendments: Wildlife in the general vicinity would be disturbed from periodic herbicide application for the next several years.

Garlon 4 is in the low toxicity category and "caution" hazard notification. According to DowElanco's Chemical data sheet, Garlon 4 has low oral toxicity and is nonirritating to skin and eyes, as judged by tests on rabbits (Neil 1990).

Glyphosate (Rodeo/Aquamaster) toxicity field studies have been extensive. Glyphosate has been found not to affect reproduction, growth, or survival of deer mice (Ritchie et. Al, Sullivan 1988). Similarly, glyphosate was found to have low toxicity to birds (McComb et. Al. 1990).

Based on test results submitted to the EPA from both herbicide manufacturers, both herbicides, when properly applied, pose minimum risks to the wildlife species which occur in the area. The rapid decomposition would limit any affects on wildlife.

Irrigation: Irrigation would promote plant growth resulting in a faster recovery of the burn site. This would benefit all species that use upland vegetation.

California Black Rail Habitat Construction: Shallow wetland habitat comprises only a small portion of the burned area. This kind of habitat creation would benefit many species that play key roles in structure and function of the Mittry Lake biota. These shallow wetlands are not only a source of highly productive vegetative material but also insects, fish, small mammals, and marsh birds. A small area of the wildfire would be precluded from riparian forest by the creation of this area but this would be negligible in the project as a whole.

Soil analysis and monitoring would have negligible affects, to wildlife.

2. <u>Effects of No Action</u>

Besides failing to support high diversity and abundance of wildlife, allowing tamarisk to exist in the proposed project area has far-reaching effects beyond the borders of the proposed project area.

Tamarisk in the proposed project area would continue to pose a fire hazard to existing wildlife habitat nearby (Pratt cottonwood-willow tree nursery and Betty's Kitchen).

Cohan and others (1977) found some neotropical migratory bird species avoided monotypic stands of tamarisk during migration. Existing conditions would likely contribute to the decline of those migratory bird species that depend on cottonwood-willow habitat during migration. Migrating birds forced to occupy low-quality habitat reduce their body mass and increase their length of stay at stopover sites (Russell and others 1994). Because high-quality stopover sites are a critical link between breeding and wintering grounds, high-quality stopover

habitat could have population-level implications to birds (Russell and others 1994).

E. Threatened and Endangered Species

Federally listed threatened/endangered species and state-listed special status species occur in the proposed project area. They are the threatened bald eagle, endangered brown pelican, state endangered California black rail, endangered razorback sucker, endangered southwestern willow flycatcher, candidate western yellow-billed cuckoo, and endangered Yuma clapper rail. A Biological Evaluation (Appendix I) would be sent to the U.S. Fish and Wildlife Service concerning federally listed species and added to the final project file upon completion.

Bald Eagle
Mittry Lake is located within the winter range of the bald eagle (September through March). Wintering bald eagles would use tall trees as perches and feed on fish. The bald eagle does not nest on the lower Colorado River.

Brown Pelican
The brown pelican is typically found on the Pacific Coast and is an uncommon transient in Arizona on the Lower Colorado River. Individuals are known to travel up from Mexico in the summer and fall and be blown inland during storms. There are no breeding records in Arizona. Brown pelican habitat would consist of open water areas of lakes and backwaters in the area.

California Black Rail
The California black rail occurs in two disjunctive regions in the U.S.: the lower Colorado River and northern California. It is rare, and many local populations have declined in recent years due to loss of wetland habitat (Conway and others 2002). It is considered a species of special concern by the AGFD (Arizona Game and Fish Department in prep) and a priority species by Arizona Partners in Flight (Latta and others 1999).

Mittry Lake accounts for approximately 40% of the known population of California black rails in Arizona (Conway and others 2002). Most of the habitat consists of stands of three-square bulrush (*Scirpus olneyi*) along the east shore of the lake. These bulrush marshes were created and are sustained by seepage from the Gila Gravity Main Canal to the east.

The action of the water trickling through these marshes appears to flush away salts that otherwise would accumulate, maintains soil saturation to a level sufficient to inhibit invasive plants such as phragmites and tamarisk, and sustains the shallow, stable water levels that black rails require. The result is large patches of high quality black rail habitat.

Survey sites where California black rails were detected in the years 1998 through 2002 are displayed in Map 6. Habitat for about half of the Mittry Lake population burned. While capable of sustained flight, black rails seek heavy cover when threatened and are

very reluctant to fly. It is likely that some birds perished in the fire. Other birds probably dispersed into the remaining habitat at Mittry or to nearby marshes. Studies at Mittry indicate that nesting generally begins in late March, so few or no nests were likely destroyed. Surveys have resulted in no observations of California black rails after the fire and none were observed during the fire.

Foraging and nesting habitat has been lost for at least one breeding season. Surviving birds have been displaced into habitats that may be less suitable or are already occupied. Unlike the five other rallid species that occur in the area and have been observed since the fire, black rails require dense stands of residual vegetation, which will probably not re-establish for at least a year. The three-square bulrush is resprouting vigorously. The burn may ultimately increase the productivity of the three-square bulrush habitat upon which black rails are dependent, and so may eventually be beneficial.

Razorback Sucker
Historically, razorback suckers were abundant in the Lower Colorado River and its major tributaries. Currently, they are essentially extirpated from the river below Imperial Dam. There are populations in Lake Havasu and Lake Mohave and a small population persists in Senator Wash Reservoir. Stockings have occurred in the river above Imperial Dam and it is possible a few individuals could have passed downstream. No razorback suckers have been detected during recent years' fisheries surveys in Mittry Lake. The nearest area of designated critical habitat for razorback suckers is located less than a mile to the north above Imperial Dam on the Colorado River.

Southwestern Willow Flycatcher
Southwestern willow flycatcher (SWFL) is one of five subspecies of willow flycatchers that occur in North America. This small, insectivorous songbird spends its winters in Central America, and migrates to North America to breed.

During migration, SWFL may use a variety of vegetation, which may include Fremont cottonwood (*Populus femontii*), Goodding's willow (*Salix gooddingii*), seep willow (*Baccharis glutinosa*), understory tamarisk (*Tamarix ramosissima*), monotypic tamarisk stands, saltbush (*Atriplex spp*.), irrigation ditches, and agricultural fields (Finch and others 2000). During breeding season, SWFL prefers to nest in dense forest stands of early, successional cottonwood and willow habitat along still or slow-moving watercourses. In addition, they nest in mature stands of tamarisk.

Potential migration and breeding habitat may be found within two miles of the proposed project. Migrating and potentially breeding SWFLs have been detected during surveys of these areas (McKernan (1997) and McKernan and Braden (1998, 1999, 2001a, 2001b, 2002)). Birds were assumed to be potential breeders because they were detected after 10 June when SWFL breeding activities usually start. However, no direct evidence of SWFL breeding was found despite repeated visits. The proposed project area, currently, has no breeding habitat and only poor-quality migration habitat.

Western Yellow-Billed Cuckoo
USFWS has recently listed western yellow-billed cuckoo (WYBC) as a candidate under the Endangered Species Act. Populations of WYBC have dropped precipitously. For

example, over 15,000 pairs once occurred in California less than 100 years ago, but now California has less than 30 pairs (Hughes 1999). Habitat loss and fragmentation in the west has contributed to their rapid decline (Laymon and Halterman 1989; Hughes 1999).

In the Sonoran Desert, WYBC occurs in mature cottonwood-willow and dense mesquite (Rosenberg and others 1991; Hughes 1999), but rarely occurs in tamarisk. In the lower Colorado River Valley, Hunter and others (1988) found only 2.4 percent of the WYBC population occurred in tamarisk relative to native habitat such as cottonwood-willow (68.3 percent), honey mesquite (19.5 percent), and screwbean mesquite (9.8 percent). Cottonwood and willow forests are critical to attracting nesting yellow-billed cuckoos.

According to AGFD's Heritage Data Management System, there were no recorded sightings of yellow-billed cuckoos within the pre-burned area. However, an observer in July 1985 recorded a potentially breeding yellow-billed cuckoo within 100 meters of the pre-burned area.

Yuma Clapper Rail

The Yuma clapper rail (YCR) is the only clapper rail to breed in freshwater marshes. Their year-round habitat requirements include a mosaic of variable-aged stands of emergent vegetation interspersed with open-water shallow pools. Breeding habitat is characterized by dense vegetation near water's edge. Nests are placed in these sites or, if available, on high sites within marshes, e.g. where banks are slightly higher than adjacent marshes. Pre-fire surveys performed by the Arizona Game and Fish Department detected Yuma clapper rails at Mittry Lake in the fire area. Survey sites where Yuma clapper rails were detected in the years 1998 through 2002 are displayed in Map 6. The presence of Yuma clapper rails was also noted during post fire inspections. Research conducted by Eddleman (1989) indicates that the Mittry Lake population is non-migratory.

The fire burned a large area of marsh and may have killed some adult Yuma clapper rails, which were not able to disperse out of the immediate fire area into unburned adjacent marsh habitat. There should not have been any young in nests at the time the fire occurred. Since the wildfire there is a large area of new growth cattail perfectly suited for Yuma clapper rails.

1. Effects of Proposed Action

The proposed action would attempt to increase the habitat quality for wildlife including threatened and endangered species in the proposed project area. Direct effects as described in this report refer to mortality or disturbance, which results in flushing, displacement, or harassment of the animal. Indirect effects refer to modification of habitat. Since it is highly unlikely razorback suckers or brown pelicans are present in the project area and there would be no impact on the aquatic system, there would be no affects to razorback suckers or brown pelicans from any treatment activities.

There would be some impacts of the proposed action common to all affected species. The rehabilitation treatments within this proposed action include activities that may result in the temporary dispersal of avian species as these

activities are taking place. However, because sufficient habitat exists within a short distance from the project area for all these species and implementation of mechanized treatments would occur outside of SWFL and YCR breeding seasons, these effects would be insignificant. All species of wildlife in the area would benefit from the reduction in the danger of future wildfires as a result of reducing hazardous fuels.

Mechanical treatments, planting, seeding, and herbicide activities would preclude future tamarisk growth, which could become habitat for SWFL, through direct removal and shading. Preventing tamarisk growth may affect migrating flycatchers, which can use tamarisk stands not normally preferred for breeding. However, the effects are insignificant to migrating SWFLs because there are relatively large amounts of available tamarisk habitat nearby. In a 3-mile radius around the center of the burn, there is approximately 5096 acres of tamarisk habitat or tamarisk-mix available for stopover habitat. Therefore, the 249 acres in which tamarisk is to be excluded is relatively small in comparison to the available stopover habitat nearby.

Mechanical: Inundated marsh would be avoided thereby eliminating disturbance of rail habitat. Bald eagle habitat would not be disturbed. Since burned but still standing trees could serve as perches, the fish in the lake would be unaffected.

Planting and Caging: Inundated marsh would be avoided thereby eliminating disturbance of rail habitat. Planted cottonwoods and willows could serve as perching sites for wintering eagles, when they are mature.

Long term rehabilitation of cottonwood and willow early succesional forest would benefit SWFL and WYBC because it is preferred habit.

Seeding: Inundated marsh would be avoided thereby eliminating disturbance of rail habitat. Seeding would be beneficial to SWFL and WYBC by increasing native plant diversity.

Herbicide Application/Fertilization/Soil Amendments: Garlon 4 is in the low toxicity category and "caution" hazard notification. According to DowElanco's Chemical data sheet, Garlon 4 has low oral toxicity and is nonirritating to skin and eyes, as judged by tests on rabbits (Neil 1990).

Glyphosate (Rodeo/Aquamaster) toxicity field studies have been extensive. Glyphosate has been found not to affect reproduction, growth, or survival of deer mice (Ritchie et. al, Sullivan 1988). Similarly, glyphosate was found to have low toxicity to birds (McComb et. al. 1990).

Based on test results submitted to the EPA from both herbicide manufacturers, both herbicides, when properly applied, pose minimum risks to the wildlife species which occur in the area. The rapid decomposition would limit any affects on wildlife.

Herbicide application may occur both within and outside of SWFL and YCR breeding seasons. However, since those applications occurring within these breeding seasons will be implemented using non-mechanized means the effects would be no more than typical recreation in the area.

Irrigation: Irrigation would promote plant growth resulting in a faster recovery of the burn site. This would benefit all species that use upland vegetation.

California Black Rail Habitat Construction: Construction of a shallow wetland would directly benefit black rail cover and foraging habitat by increasing the amount available. YCR would benefit from these activities as well. Conversion of tamarisk to marsh would reduce the amount of potential SWFL habitat available.

2. Effects of No Action

Cottonwood and willow habitat lost in the fire would most likely be replaced by tamarisk monoculture. Threatened and endangered species numbers could continue to decline as the quality of riparian habitat decreases.

Tamarisk has resprouted and would continue to dominate the project area excluding recruitment of native species. Native species would provide better quality habitat for SWFL and WYBC. Tamarisk would continue to pose a fire threat to the Mittry Lake Wildlife Area.

Resprouting tamarisk could become potential SWFL habitat.

F. Climate and Air Quality

The lower Colorado River Valley challenges the Mohave Desert's Death Valley as the hottest and driest place in North America. The temperature extremes range from 32 degrees F to120 degrees F. The amount and seasonality of rainfall are defining characteristics of the Sonoran Desert. Much of the area has a bi-seasonal rainfall pattern. A brief summer rainy season and widespread winter rains deliver 3 inches of rainfall on average (Phillips 2000).

Yuma County and a small portion of the Laguna Region are considered non-attainment areas for airborne particulate matter 10 microns or less in diameter (PM_{10}). However, data from Arizona Department of Environmental Quality (ADEQ) for 1991-1995 does not show PM_{10} levels above the Arizona Ambient Air Quality Standards. The major sources of air pollution are vehicular travel on improved and unimproved surfaces and agricultural activities. Air quality is otherwise excellent except during times of high winds (U.S. Army Yuma Proving Ground 2001).

1. Effects of Proposed Action

The use of gasoline or diesel-powered heavy machinery during all phases of the proposed action would produce carbon monoxide emissions.

Mechanical: If vegetative debris is chipped/mulched, the only impacts to air quality would be result of gas-powered equipment. Fine ash and soil would become airborne within the project area. This area would then be subject to wind erosion until the mulching and berms would be constructed on the site. The negative effects to air quality would only be during the short time of the project implementation. The proposed action would contribute to levels of PM_{10} for a limited duration. However, the alteration of the vegetation community in the Mittry Lake area to a more fire resistant regime would decrease the potential for wildfire in the future, reducing the potential threats to air quality in the form of smoke and particulate emissions.

Irrigation: Water would assist in stabilizing soil and minimize erosion or displacement.

Herbicide Application/Fertilization/Soil Amendments: If herbicides were used, small amounts of herbicide would be released into the atmosphere at the point of the spray nozzle. Triclopyr and glyphosate both photodegrade rapidly and persistence is short.

California Black Rail Habitat Construction: Air quality would be affected for a limited time during the implementation of the project.

Planting and caging, seeding, soil analysis, and monitoring are seen to have minute affects, if any to air quality.

1. Effects of No Action

Air quality would be affected during times of high winds. Exposed soils and ash from the fire would become airborne increasing PM_{10} levels. These exposed soils would be an air quality detriment until the tamarisk resprouted and stabilized the soils.

G. Visual Resources

The public land along the lower Colorado River is classified as a Visual Resources Management (VRM) Class II area. Within a Class II VRM, changes from the natural environment may be visible but should not attract attention. A Visual Contrast Rating Worksheet is found in Appendix H (BLM Form 8400-4 1985).

The visual character of Mittry Lake was altered appreciably as result of the wildfire. Charred and resprouting vegetation now covers 1,313 acres of this wildlife area. The loss of approximately 250 acres of cottonwood, willow, mesquite, and other native vegetation detract from the area's visual diversity and quality. Native vegetation significantly affects the diversity of color, texture, and form that contribute to the area's visual resource values.

1. Effects of Proposed Action

Mechanical: Visual resources would temporarily be altered due to the proposed action. Heavy equipment and /or hand crews would cut and mulch much of the burned vegetation.

Planting and Caging: The disturbance would be mitigated by revegetation and development of native canopy. Dense thickets of cottonwood and willow would be planted in suitable areas, increasing the habitat value and the color, texture and form that significantly affect the aesthetic character of Mittry Lake. These plantings would rehabilitate this portion of the lower Colorado River to a typical riparian zone before the encroachment of tamarisk.

Seeding: Upon germination, seed would improve visual quality in that it would replace the charred area with green.

Irrigation, soil analysis, herbicide application, fertilization/soil amendments, and California Black Rail habitat construction would contribute to the success of native plant revegetation and restore/enhance visual resources.

Interpretive Signage: Would follow VRM guidelines. Existing sign/kiosk designs used for the Field Office blend in with the areas character and would not detract from visual resource values.

2. Effects of No Action

There would be no change to visual resources in the proposed project area. The tamarisk and marsh vegetation would eventually regenerate from the fire. Native vegetation would not be as likely to regenerate. The permanent loss of native vegetation would detract from the diversity of color, texture, and form and lessen the quality of the area's visual resource values.

H. Recreation

The proposed project area is in the City of Yuma geographical area. The year-round use for recreation is high in this area. During the period from October to April, the primary users of the area are winter visitors and local residents, camping, hunting, fishing, and enjoying scenic views. During the period from May until October, the primary users are water sport enthusiasts (Levitt 1998).

The primary recreational activity at MLWA is fishing. Other recreational activities include camping, boating, bird watching, photography, and hunting. Hunting is primarily for waterfowl, but quail, doves, and other game species are also taken. Data from the BLM Recreation Management Information System indicates that the MLWA experiences approximately 11,500 recreation use visits annually, totaling approximately 134,000 visitor-hours. Most of the project area has very poor access and includes little habitat for sport fish. With the possible exception of fishing from the Imperial Dam Road, little recreation takes place within the proposed project area. Contributions to the general

area's viewshed do affect visual resources that enhance the quality of recreational opportunities.

1. Effects of Proposed Action

Mechanical: During several stages of the proposed action the project area may be closed off and access restricted. Recreation in Mittry Lake Wildlife Area may be limited to assure the health and safety of the public. No new public routes or trails will result from proposed actions. Further planning in order to manage recreation use may be necessary.

Planting and Caging: Following the restoration effort, recreation such as bird watching and wildlife viewing could increase.

Interpretive Signage: Impacts related to sign placement would not have as great an impact on the site as the other proposed actions. Signage would provide environmental education to visitors. The site location would be coordinated with recreation, law enforcement, and other specialists.

Seeding, irrigation, soil analysis, herbicide application, fertilization/soil amendments, and California black rail habitat construction would have negligible impacts to recreation in the Mittry Lake area.

2. Effects of No Action

Mittry Lake would continue in its current recreation patterns. Opportunities for passive recreation opportunities would not be enhanced.

I. Floodplains

Floodplains are strips of flat land adjacent to the channel subject to flooding. The proposed project area is within the 100-year-floodplain of the Colorado River. Although flooding is rare, past floods have been associated with rapid snowmelt in the upper portions of the Colorado River watershed. These floodplains once harbored a rich native seed bank, but are currently dominated by non-native tamarisk.

1. Effects of Proposed Action

The proposed vegetation restoration effort is not expected to change the functioning of the floodplain of the Colorado River, or to interfere with potential flood flows. Mechanical treatments, planting and caging, seeding, irrigation, soil analysis, herbicide application, fertilization/soil amendments, and California black rail habitat construction activities have little to no affect on floodplain functioning.

In areas immediately adjacent to open water, Rodeo/Aquamaster would be used instead of Garlon.

2. Effects of No Action

Potential flood flows would be unimpeded as a result of the No Action Alternative.

J. Wetland/Riparian Zones

The proposed project area is within a riparian area associated with the Colorado River. Currently the riparian zone is dominated by monotypic non-native vegetation. Southwestern riparian ecosystems are one of the most critically endangered habitats in North America (U.S. Fish and Wildlife Service 2001).

1. Effects of Proposed Action

Mechanical: The proposed eradication/control effort is expected to improve the quality of the riparian zone. Avoidance of inundated marsh areas would maintain wetland functions.

Planting and Caging, Seeding: Rehabilitation would promote riparian landscape complexity.

Herbicide Application/Fertilization/Soil Amendments: Herbicides and fertilizer would be used in accordance with labeled restrictions so they do not degrade the wetland and riparian areas of Mittry Lake and the Colorado River.

Irrigation: Supplemental irrigation would help to increase amounts of wetland vegetation.

California Black Rail Habitat Construction: This directly benefits wetland habitat at Mittry Lake.

Soil analysis and monitoring activities would have little to no affect on wetlands.

2. Effects of No Action

Tamarisk would continue to dominate the riparian corridor and increase soil salinity and further lower the water table. Wildlife forage would continue to be of poor value. Numbers and diversity are not likely to change.

K. Land Use and Ownership

The Mittry Lake Wildlife Area is managed under a Cooperative Agreement between the Arizona Game and Fish Department and the Bureau of Reclamation Contract # 14-06-300-22833, signed on February 1, 1972.

The proposed project is on "Reclamation Lands"---those lands acquired or withdrawn for reclamation purposes under reclamation law. Additional uses of these lands by the public are provided for in the Lower Colorado River Land Use Plan, approved by the Secretary

of Interior in January 1964. By specific Department of Interior directive, Departmental Manual (DM) 613 defines administration and responsibilities of the plan. According to DM 613, the BLM Yuma Field Office (formerly the Lower Colorado River Land Use Office and Yuma District Office) is assigned full responsibility for recreation and wildlife, among other responsibilities, on reclamation withdrawn lands. For the Mittry Lake Wildlife Area, Arizona Game and Fish Department has primary responsibility for wildlife management.

1. Effects of Proposed Action

There would be no change in land status.

2. Effects of No Action

There would be no change in land status.

L. Cultural Resources

Several Class III cultural resources inventories have been completed within the immediate vicinity of Mittry Lake, including inventories by Joan Northrop (1986) and Carol Telles (2001). Northrop and Telles inventoried a total of 120 acres on the floodplain within the perimeter of the Mittry fire. Neither Northrop or Telles found evidence of cultural resources within the proposed work site.

Cultural resources have been identified on the higher terraces surrounding Mittry Lake by H. Dan Hall (2003) during a pedestrian reconnaissance of terraces within and adjacent to the burned area immediately following the Mittry fire. Surveying four linear polygonal areas averaging two acres each using closely spaced transects, Hall found four new archaeology sites and one previously recorded site. Since all five archaeological sites are located outside the fire perimeter, they will not be affected by the proposed action.

DMG Four Corners Research, Inc., headed by David Purcell (2003), conducted a Class III cultural resource inventory. Their survey covered all areas that would be affected by surface disturbing activities as a result of the proposed action, with the exception of terrain that was underwater, overgrown, or lacking an archaeological surface. By walking parallel transects spaced 15 m apart, Purcell's survey team identified four archaeological sites and fourteen isolated occurrences. The isolated occurrences, all historic and/or recent, consist of two isolated artifacts, five isolated features, and seven artifact scatters. Objects found include cinder blocks, wire nails, wood screws, hinges, metal drums and cans, glass fragments, an ammunition container, automobile bodies and parts, a concrete survey marker, and a burned transmission line tower. All of the isolated occurrences and two of the archaeological sites—AZ X:3:419 (ASM), an historic/recent trash dump (dated 1943–1970s), and one unrecorded site consisting of an old trailer court or RV park (dated 1960s–1970s)—were found ineligible to the National Register. Site AZ X:3:417 (ASM), a multi-component artifact scatter, and site AZ X:3:418 (ASM), a prehistoric artifact scatter, were both found eligible to the National Register of Historic Places under Criterion D for their information potential (36 CFR 60.4).

1. Effects of Proposed Action

Project activities would avoid the two known archaeological sites that are eligible to the National Register. The designated project access route would provide at minimum a 15 m buffer zone around the established archaeological site boundaries to avoid adverse effects. Similarly, all project rehabilitation activities would observe at minimum a 15 m buffer zone from the archaeological site boundaries.

Cultural resource stipulations would include the provision that all work would be stopped at once upon discovery of any cultural resources and the BLM Yuma Field Office Archaeologist would be notified immediately.

2. Effects of No Action

No cultural resources would be impacted as the result of the No Action Alternative.

M. Human Health and Safety

Any land management activities undertaken on public lands must be done with human health and safety in mind. In particular, if herbicide or pesticides are used, all applicable guidelines must be followed in the use of these products. Herbicide labels contain signal words. A signal word must appear on labels to show how toxic the pesticide is. The signals words used are: "danger", "poison", or "warning", or "caution". A Pesticide Use Proposal and Spill Contingency Plan can be found in Appendices B and C, respectively.

Garlon 4 is listed with a "warning" label and harmful if swallowed, inhaled, or absorbed through skin. Arsenal is listed with a "caution" label. Compared to Garlon 3A, Garlon 4 is safer to human health with a "caution" rather than a hazardous "warning", because it does not cause eye injury. Garlon is listed as a non-restricted herbicide. Rodeo/Aquamaster, glyphosate, is listed with a "caution" label for slight toxicity according to the EPA. According to the Dow AgroSciences technical data sheet, Garlon 4 has low oral toxicity and is non-irritating to the skin and eyes. Triclopyr, the active ingredient in Garlon, and glyphosate the active ingredient in Rodeo/Aquamaster are not considered to be carcinogenic or mutagenic. Applicators must be licensed and apply chemicals according to labeled restrictions.

1. Effects of Proposed Action

Mechanical: For short periods of time airborne particulate matter may affect air quality. It is unlikely that detrimental effects to human health will be seen due to particulate matter. Contractors would be required to follow OSHA regulations, minimizing hazard.

Herbicide Application/Fertilization/Soil Amendments: The effects to human health would be limited because of precautions taken in accordance with herbicide labels and approved Pesticide Use Proposal.

Planting and caging, seeding, irrigation, soil analysis, California black rail habitat construction and monitoring would have negligible affect on human health and safety.

2. Effects of No Action

Human health and safety would not be affected.

N. Wild Horses and Burros

Burros or wild horses do not use the proposed riparian rehabilitation site.

1. Effects of Proposed Action

There would be no known impact to wild horses and burros. Wild horses and burros are not known to inhabit the Mittry Lake area.

Mechanical treatments, planting and caging, seeding, irrigation, soil analysis, herbicide application/fertilization/soil amendments, California black rail habitat construction and monitoring would have no effects to wild horses and burros.

2. Effects of No Action

There would be no known impact to wild horses and burros. Wild horses and burros are not known to inhabit the Mittry Lake area.

O. Wastes, Hazardous and Solid

A BLM specialist for the proposed project site performed a hazardous materials check. No hazardous wastes were located in the initial survey.

1. Effects of Proposed Action

Mechanical: No effects are anticipated from the proposed action. Safeguards such as the spill contingency plan and contractual stipulations would minimize hazardous material impacts.

Herbicide Application/Fertilization/Soil Amendments: All chemical containers used during the proposed activity would be properly disposed according to label instructions ensuring project site is free of hazardous residue.

Planting and caging, seeding, irrigation, soil analysis, California black rail habitat construction and monitoring would have negligible effects for hazardous wastes and solids.

2. Effects of No Action

No wastes, hazardous and/or solid, would be used which could affect the environment in the proposed project area as a result of this alternative.

P. Environmental Justice

Executive Order 12898 requires federal agencies to achieve environmental justice "to the greatest extent practicable" by identifying and addressing "disproportionately high and adverse human health or environmental effects of programs and policies or activities on minority and low-income populations."

Yuma County has a majority Hispanic population, and many residents are low income. The proposed project site is just north of the City of Yuma. There is an abundance of agricultural activity in this portion of Yuma County.

1. Effects of Proposed Action

Implementation of the proposed action has been evaluated in accordance with CEQ guidelines and no disproportionately high and/or adverse human health or environmental effects on minority and low-income populations are anticipated. Potentially, a few short-term jobs would be created for local workers.

2. Effects of No Action

No disproportionate impacts are anticipated to low income or minority communities under the no action alternative.

Q. Invasive, Non-Native Species

In accordance with Executive Order 13112 signed February 3, 1999, all federal agencies whose actions may affect the status of invasive species shall prevent the introduction of invasive species and provide for the restoration of native species and habitat conditions in ecosystems that have been invaded. There are hundreds of exotic plant species in the riparian west. Many riparian exotics have become regionally widespread and locally dominate channels or floodplains. Tamarisk, a highly invasive species, constitutes the main structural layer within the proposed project area.

Functions of ecosystems can be reduced as monotypic stands replace more diverse mosaics and mixes of species. River regulation and flood suppression reduce channel dynamics and can result in a simplified community dominated by dense tamarisk thickets with little understory vegetation. Tamarisk has a high rate of seed production; the plant produces as many as 600,000 seeds per plant from April through October. The long period of seed production allows tamarisk to germinate well into fall, which is when most native trees are no longer producing viable seeds.

1. Effects of Proposed Action

Mechanical: The proposed action would reduce the amount of the invasive tamarisk within the project area. No invasive species including tamarisk would be introduced to the proposed project area as the result of mechanical activity because of cleaning procedures included in the proposed action.

Planting, Seeding and Caging: Planted native species would shade-out sprouting and germinating tamarisk. Tamarisk monocultures would decrease.

Irrigation: Both planted native species and non-native invasive species would regenerate more quickly as a result of supplemental irrigation.

Herbicide Application: Herbicide applications would kill tamarisk in the project area.

Fertilization/Soil Amendments: Fertilization and soil amendments would increase the growth rate of any untreated tamarisk in the project area.

California Black Rail Habitat Construction: The creation of shallow wetland would reduce the establishment of tamarisk and possibly phragmites.

Monitoring: Monitoring will allow for early detection and treatment of invasive species.

2. Effects of No Action

Without control measures, non-native vegetation communities would continue to persist and expand. Tamarisk in the proposed project area would eventually be a seed source and proliferate into adjacent lands.

R. Energy Policy

The area contains no features related to energy development, production, supply, or distribution. A utility corridor and 500 kV line crosses BLM lands to the south of the proposed project area.

1. Effects of Proposed Action

There would be no effect to the energy policy as a result of the proposed action

2. Effects of No Action

There would be no effect to the energy policy as a result of the no action alternative.

S. Rangeland Health Standards

The project area is located on a floodplain that is not designated rangeland.

1. Effects of Proposed Action

Replacing tamarisk with native trees and shrubs would contribute to the health of the land by increasing biological diversity of plant and animal life in the area. Rangeland would not be affected because there are no grazing allotments in the vicinity of the project area.

2. Effects of No Action

No impacts are anticipated to rangeland health standards as a result of the proposed action.

IV. CUMULATIVE IMPACTS

This document analyzed cumulative effects on wildlife, habitat, and recreation for the immediate geographic scope of the Mittry Lake Wildlife Area within a 5-year planning horizon. Additionally, consideration was given to the larger lower Colorado River ecosystem. The following bullets summarize actions which would cumulatively impact the wildlife area.

- Riparian rehabilitation proposed in this project would increase the number and diversity of wildlife along the lower Colorado River.

- Removal of dense tamarisk stands could accomplish hazardous fuels reduction, thereby improving the overall health of the land.

- Removal of tamarisk could eventually lead to a decrease in salinity of the soil and allow for unassisted native plant regeneration.

Several other projects may occur within a 5-mile radius of the proposed project. The cumulative impacts of these projects in addition to the proposed action are discussed below.

A. Mittry Marsh Burn

During March of 2003, a federal and state project was conducted at the far northern end of Mittry Lake Wildlife Area located at T. 6 S., R. 31 W., sec. 31. This project removed decadent cattail marsh through aerial ignition and controlled burning within a created fireline. The purpose was to enhance habitat conditions for Yuma clapper rail. Displacement of wildlife due to temporary alteration of habitat may have occurred during the same time frame. University of Arizona designed a study to document the effect of prescribed fire on wildlife habitat. The researchers were unable to complete the study because control sites were destroyed by the wildfire.

B. Laguna Enhancement

Bureau of Reclamation, responsible for management of the surface waters in the project area, proposes to increase the Laguna Reservoir capacity to about 1500 acre-feet by dredging the old river channel. This additional reservoir capacity would permit a return to normal flushing operations in the Laguna Dam sluiceway. The exact date of these operations has not yet been set, but this proposed project is not likely to affect the proposed project area. The greater volume of water within the old river channel or reservoir would not affect the depth to ground water. This depth is determined by the operational range of the water surface elevation behind the dam and the leakage from the Gila Main Gravity Canal. The only anticipated change may be a slight increase in ground water quality due to the increased water storage bank to draw from. It is uncertain what hydroponic results may occur through implementation of Laguna enhancement in connection with the proposed action.

C. Multi-Species Conservation Plan

As human populations increase, the demand for water and energy resources will intensify. These resource demands continually come into conflict with habitat preservation. The Lower Colorado River Multi-Species Conservation Plan (LCR MSCP) is a partnership of federal, state, Tribal, and other public and private stakeholders with an interest in managing the water and related resources of the lower Colorado River basin. The program will work toward the recovery of listed species through habitat and species conservation and attempt to reduce the likelihood of additional species listing under the Endangered Species Act. The LCR MSCP strategy involves intensive riparian restoration on federal, state, Tribal and private lands along the lower Colorado River.

The proposed project is in a locale identified by the LCR MSCP as a tier one option. This locale is a high priority under the draft MSCP plan for the same reasons outlined in this EA. Performing rehabilitation on riparian habitat invaded by saltcedar, a hazardous fuel, could have positive cumulative effects for the lower Colorado River ecosystem. Successes and failures could be documented and provide LCR MSCP planners with useful information. A pro-active stance is necessary to aid in species recovery and create better regional habitat conditions. The proposed project would support the goals of the LCR MSCP.

D. Pratt Restoration Site

The Pratt Restoration Site, also known as the Pratt tree farm, is located just upstream from Laguna Dam, in Yuma County, AZ. The 58.75-acre area is under a BLM agricultural lease and has been farmed for at least 50 years by the lessee. In 1999 the lessee relinquished 12 acres and a team of federal and local interests cleared a 12-acre section of the agricultural field, and planted cottonwood and willow. This 12-acre field has since been flood-irrigated to sustain the planted vegetation. Habitat planted with rooted stock at the Pratt site grew into tall, dense stands of cottonwood and willow with a nearly closed canopy by the end of the growing season (UDSI BR, 1998). The Pratt tree farm has been very successful in improving the habitat diversity of the Mittry Lake Area. The proposed project would strive to build on that success, increasing the localized

habitat structure.

E. Betty's Kitchen

Betty's Kitchen Wildlife and Interpretive Area is located along the lower Colorado River near Yuma, Arizona. It is home to a Watchable Wildlife Interpretive Area and a National Recreation Trail. This 10-acre parcel of Bureau of Reclamation withdrawn land is currently under Bureau of Land Management jurisdiction. Betty's Kitchen has outstanding natural and historic features, and provides universally accessible wildlife viewing opportunities (BLM, 1995). Past restoration projects have increased the vegetative diversity of Betty's Kitchen, including many birds, reptiles, and mammals. The BAER project expands on the nature viewing opportunities currently provided by Betty's Kitchen. The affects of the proposed action would increase recreational opportunities for Yuma residents and tourists.

V. List of Sources, Agencies, and Persons Contacted

A. List of Preparers

Dave Repass	YFO Interagency Fire Program - Fire Biologist - Project Lead
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STATE

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VI. Literature Cited

Anderson, B.W., A. Higgins, and others. Avian use of tamarisk communities in the lower Colorado River Valley (1977). Importance, preservation, and management of riparian habitat. R.R. Johnson and D.A. Jones. Fort Collins, Colorado, USA, Rocky Mountain Forest and Range Experiment Station. pp. 128-36.

Anderson, B.W. and R.D. Ohmart (1985). Riparian revegetation as a mitigating process in stream and river restoration. The restoration of rivers and streams: Theories and experience. J.A. Gore. Boston, Massachuchetts, USA, Butterworth Publishers. pp 41-79.

Brown, B.T. and M.W. Trosset (1989). "Nesting-habitat relationships of riparian birds along the Colorado River in Grand Canyon, Arizona [USA]." Southwestern Naturalist 34(2). pp. 260- 270.

Brown, B.T. (1992). "Nesting chronology, density and habitat use of black-chinned hummingbirds along the Colorado River, Arizona." 63(4). pp. 393-506.

Cohan, D.R., B.W. Anderson, and R.D. Ohmart (1979). Avian population response to tamarisk along the lower Colorado River. Pages 371-382 in R.R. Johnson and J.F. McCormick, eds., Strategies for Protection and Management of Floodplain Wetlands and other Riparian Ecosystems. USDA Forest Service GTR WO

Conway, C.J., C. Sulzman, and B.E. Raulston. 2002. Population trends, distribution, and monitoring protocols for the California Black Rail. Unpub. report to Arizona Game and Fish Department.

Dudley, T.L., C.J. DeLoach, et al. (2000). "Tamarisk invasion of western riparian areas: impacts and new prospects for control." Transactions of North American Wildlife and Natural Resources Conference 65. pp. 345-381.

Eddleman, W. R. 1989. Biology of the Yuma Clapper Rail in the southwestern U.S. and northwestern Mexico. Final Rept., Intra-Agency Agreement No. 4-AA-30-02060, U.S. Bur. Reclam., Yuma Proj. Off., Yuma, AZ.

Ellis, L.M. (1995). "Bird use of tamarisk and cottonwood vegetation in the Middle Rio Grande Valley of New Mexico, U.S.A." Journal of Arid Environments 30(3). pp. 339-349.

Ellis, L.M., C.S. Crawford, et al. (1997). "Rodent communities in native and exotic riparian vegetation in the Middle Rio Grande Valley of central New Mexico." Southwestern Naturalist 42(1). pp. 13-19.

Hall, H.D. (2003). Interagency Burned Area Emergency Stabilization & Rehabilitation Plan, Mittry Fire, Cultural Resource Assessment.

Hughes, J.M. (1999). Yellow-billed cuckoo (*Coccyzus americanus*). The birds of North America. A. Poole and F. Gill. Philadelphia, Pennsylvania, USA, The Academy of Natural Sciences**:** 28.

Hunter, W.C., B.W. Anderson, et al. (1985). Summer avian community composition of Tamarix habitats in three Southwestern desert riparian systems. Riparian ecosystems and their management: Reconciling conflicting uses. R. R. Johnson. Fort Collins, Colorado, USA, Rocky Mountain Forest and Range Experiment Station**.** pp. 128-34.

Jakle, M.D. and T.A. Gatz (1985). Herpetofaunal use of four habitats of the Middle Gila River drainage, Arizona. Riparian ecosystems and their management: Reconciling conflicting uses. R.R. Johnson, C.D. Ziebell, D.R. Paton, P.F. Ffolliott and R.H. Hamre. Fort Collins.

Latta, M.J., C.J. Beardmore, and T.E. Corman. 1999. Arizona Partners in Flight Bird Conservation Plan. Version 1.0. Nongame and Endangered Wildlife Program Technical Report 142. Arizona Game and Fish Department, Phoenix, Arizona.

Laymon, S.A. and M.D. Halterman (1989). A proposed habitat management plan for yellow- billed cuckoos in California. Proceedings of the California Riparian Systems Conference: protection, management, and restoration for the 1990s. D. L. Abell, Technical Coordinator. Berkeley, CA, Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture. pp. 272-277.

McClure, C. Kimberly Greene (1993). *A Cultural Resources Investigation of 1000 Acres at Mittry Lake, Near Yuma, Arizona.* Statistical Research, Inc. Tucson, Arizona.

McKernan, R. L. (1997). Status, distribution, and habitat affinities of the southwestern willow flycatcher along the lower Colorado river : year 1 - 1996. Redlands, California, San Bernardino County Museum.

McKernan, R.L. and Braden, G. (2001). *Status, Distribution, and Habitat Affinities of the Southwestern Willow Flycatcher Along the Lower Colorado River Year 4-1999.* pp. 44, 5, 7.

McKernan, R.L. and Braden, G. (2001). *Status, Distribution and Habitat Affinities of the Southwestern Willow Flycatcher Along the Lower Colorado River Year 5-2000.* pp. 14, 46, 59, 81, 83.

Neill, W.M. (1985). "Tamarisk." Fremontia 12. pp. 22-23.

Northrop, Joan.1986. *Archaeological Survey of Mittry Lake Water Delivery System Class III Survey.* Lower Colorado Regional Office, Bureau of Reclamation.

Ohmart, R.D., B.W. Anderson, and W.C. Hunter (1988). The ecology of the lower Colorado River from Davis Dam to the Mexico-United States International Boundary: a community profile. U.S. Fish and Wildlife Serv. Biol. Rep. 85 (7.19).

Phillips. A Natural History of the Sonoran Desert (2000). University of California Press. London, England. pp. 13, 14, 15, 16.

Purcell, D. (2003). *A Cultural Resources Survey of the Mittry Lake Burned Area Emergency Rehabilitation (BAER) Mittry Lake Wildlife Area Yuma County, Arizona and Imperial County, California.* Four Corners Research, Flagstaff, Arizona. BLM Cultural Resources Project Number BLM-AZ-050-03-10.

Rosenberg, K.V., R.D. Ohmart, et al. (1991). Birds of the Lower Colorado River Valley. United States of America, University of Arizona Press.

Russell, R.W., F.L. Carpenter, M.A. Hixon, D.C. Paton. 1994. The impact of variation in stopover habitat quality on migrant rufous hummingbirds. Conservation Biology 8: 483-490.

Schroeder, A.M. (1993). Effect of tamarisk removal on avian distributions at Camp Cady Wildlife Area in the California Mojave Desert. Environmental Studies. Fullerton, California State University.

State of Arizona Game and Fish Department (1997). Mittry Lake Wildlife Area Management Plan. pp. 10, 3, 4.

Telles, Carol (2001). *Cultural Resources Survey for A Prescribed Burn at The Mittry Lake Wildlife Area.*Cultural Resources Report Number: BLM-AZ-050-01-04. Bureau of Land Management, Yuma Field Office, Yuma, Arizona.

USDA-Soil Conservation Service (1980). Soil Survey of Yuma-Wellton Area. pp. 14, 15, 23

USDI-Army Yuma Proving Ground (2001). Final Range Wide Environmental Impact Statement. pp. 35-36.

USDI- Bureau of Land Management (1991). Final Environmental Impact Statement Vegetation Treatment on BLM Lands in Thirteen Western States. pp. 316.

USDI-Bureau of Land Management (2003). Mittry Lake Burned Area Emergency Rehabilitation Plan. pp. 72.

USDI-Bureau of Land Management (1986 & 1987). Yuma District Resource Management Plan and Environmental Impact Statement. pp. 7, 8, 15, 279-280.

USDI-Bureau of Reclamation, Raulston (1998). "*Challenges of Habitat Restoration on the Lower Colorado River and Its Tributaries, Draft*." pp. 8-11, 15-17, 19-20.

USDI-Fish and Wildlife Service and U.S. Bureau of Reclamation (1994). Lower Colorado River National Wildlife Refuges Comprehensive Management Plan and Environmental Assessment. pp. 21-23.

USDI-Fish and Wildlife Service (2001). Southwestern Willow Flycatcher Recovery Plan, Draft. Albuquerque, New Mexico.CD rom citation. pp. v, K-11, H-6, H-7.

VII. REFERENCES

American Bird Conservancy (2000). Partners in Flight, Conservation of the Land Birds of the United States. pp.78-79.

Anderson, B. "Tamarisk, Revegetation and Riparian Ecosystems in the Southwest". *California Exotic Pest Council. 1995 Symposium. September 14, 2001.* http://www.caleppc.org/symposia/95symposium/anderson.html

Anderson, B. and Russell, P. (2000). Revegetation and Wildlife Center, Incorporated, River Mile 31 Revegetation Project: 2000, 98-PG-34-0138. pp.3-6.

Arizona Game and Fish Department. In prep. Wildlife of special concern in Arizona. Ariz. Game and Fish Dept. Publication. Phoenix, Arizona.

Colorado, USA, Rocky Mountain Forest and Range Experiment Station**.** pp. 355-358.

Finch, D. M., J. F. Kelly, et al. (2000). Migration and winter ecology. Status, ecology, and conservation of the Southwestern Willow Flycatcher. D. M. Finch and S. H. Stoleson. Ogden, Utah, U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station: 131.

Johnson, B. (1987). Class III Cultural Resources Survey for the Bettys Kitchen Interpretive. Area. BLM Cultural Resources Report BLM-AZ-050-87-2

Kearney, T.H. and R.H. Peebles (1951). Arizona Flora. Los Angeles, CA, University of California Press. pp. 1085.

Laymon, S. A. and M. D. Halterman (1989). A proposed habitat management plan for yellow-billed cuckoos in California. Proceedings of the California Riparian Systems Conference: protection, management, and restoration for the 1990s. D. L. Abell, Technical Coordinator. Berkeley, CA, Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture: 272-277.

McDermott, B. Natural Resource Conservation Service. Personal Communication. Feburary, March 2002

McKernan, R. L. and G. Braden (1998). Status, distribution, and habitat affinities of the southwestern willow flycatcher along the lower Colorado river : year 2 - 1997. Redlands, California, San Bernardino County Museum.

McKernan, R. L. and G. Braden (1999). Status, distribution, and habitat affinities of the southwestern willow flycatcher along the lower Colorado river : year 3 - 1998. Redlands, California, San Bernardino County Museum.

McKernan, R. L. and G. Braden (2001). Status, distribution, and habitat affinities of the southwestern willow flycatcher along the lower Colorado river : year 4 - 1999. Redlands, California, San Bernardino County Museum.

McKernan, R. L. and G. Braden (2001). Status, distribution, and habitat affinities of the southwestern willow flycatcher along the lower Colorado river : year 5 - 2000. Redlands, California, San Bernardino County Museum.

McKernan, R. L. and G. Braden (2002). Status, distribution, and habitat affinities of the southwestern willow flycatcher along the lower Colorado river : year 6 - 2001. Redlands, California, San Bernardino County Museum.

Rappole, J. The Ecology of Migrant Birds, A Neotropical Perspective (1995). Smithsonian Institution Press, Washington.

Rosenberg, K. V., R. D. Ohmart, et al. (1991). Birds of the Lower Colorado River Valley. United States of America, University of Arizona Press.

Rankin, Adrianne G. (1986). *A Cultural Resource Inventory Within A Selected Portion of The Imperial National Wildlife Refuge Southwestern Arizona.* Cultural Resource Management Division, Arizona State Museum, The University of Arizona.

State of Arizona Game and Fish Department. Heritage Data Management System Letter to Gail Acheson, dated August 2, 2001.

Swarthout, Jeanne and Christopher E. Drover (1981). *Final Report for An Archaeological Overview for The Lower Colorado River Valley, Arizona, Nevada, and California, REACH 3, Davis Dam to The International Border.* Museum of Northern Arizona, Department of Anthropology.

Taylor, J. and McDaniel, K. (1998). "*Restoration of Salt cedar (Tamarix sp.)-InfestedFloodplains on the Bosque del Apache National Wildlife Refuge*." Weed Technology 12. pp. 345-352.

U.S. Department of Interior, Bureau of Land Management, Arizona. 1985. Draft Yuma District Resource Management Plan and Environmental Impact Statement.

_____. (1990). Arizona riparian-wetland area management strategy. p. 3.

_____. (1988). Riparian-wetland initiative for the 1990's. pp 15-17.

_____. (1992). Nongame migratory bird conservation plan, Fish and Wildlife 2000. p 13.

_____. (1995). Betty's Kitchen Wildlife and Interpretive Area. EA-AZ-055-95-031. Yuma Field Office

_____. (1998). Overview of BLM's NEPA Process, Arizona BLM Desktop Reference. Taken from BLM Manual H-1790-1, appendix 5.33

_____. (1998). Yuma/Havasu Fire Management Zone Fire Management Plan. pp.2, 22.

_____. (1999). Riparian Restoration at Picacho State Recreation Area. EA-AZ-050-99-022. Yuma Field Office

_____. (2003) Mittry Fire C874 Burned Area Emergency Stabilization and Rehabilitation (ESR) Plan

_____. (2001). Yuma Field Office Field Notes

USDI Bureau of Reclamation. (1997). Biological and Conference Opinion on Lower Colorado River Operations and Maintenance-Lake Mead to Southerly International Boundary. p.30, 31.

_____. (1995). Vegetation Management Study Lower Colorado River. p. iii.

Weisenborn, W. "Tamarisk Impacts on Salinity, Water, Fire Frequency and Flooding." *Tamarisk Management Workshop.* June 12, 1996. January 7, 2001. http://bluegoose.arw.r9fws.gov/NWRSFile...tMgmt/TamariskWorkshopJun96/Paper3.html

Wong, F. and Young, J. Bureau of Land Management. Personal Communication, May 2002.

VII. APPENDICES

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Appendix B. Pre-Fire Vegetation Map
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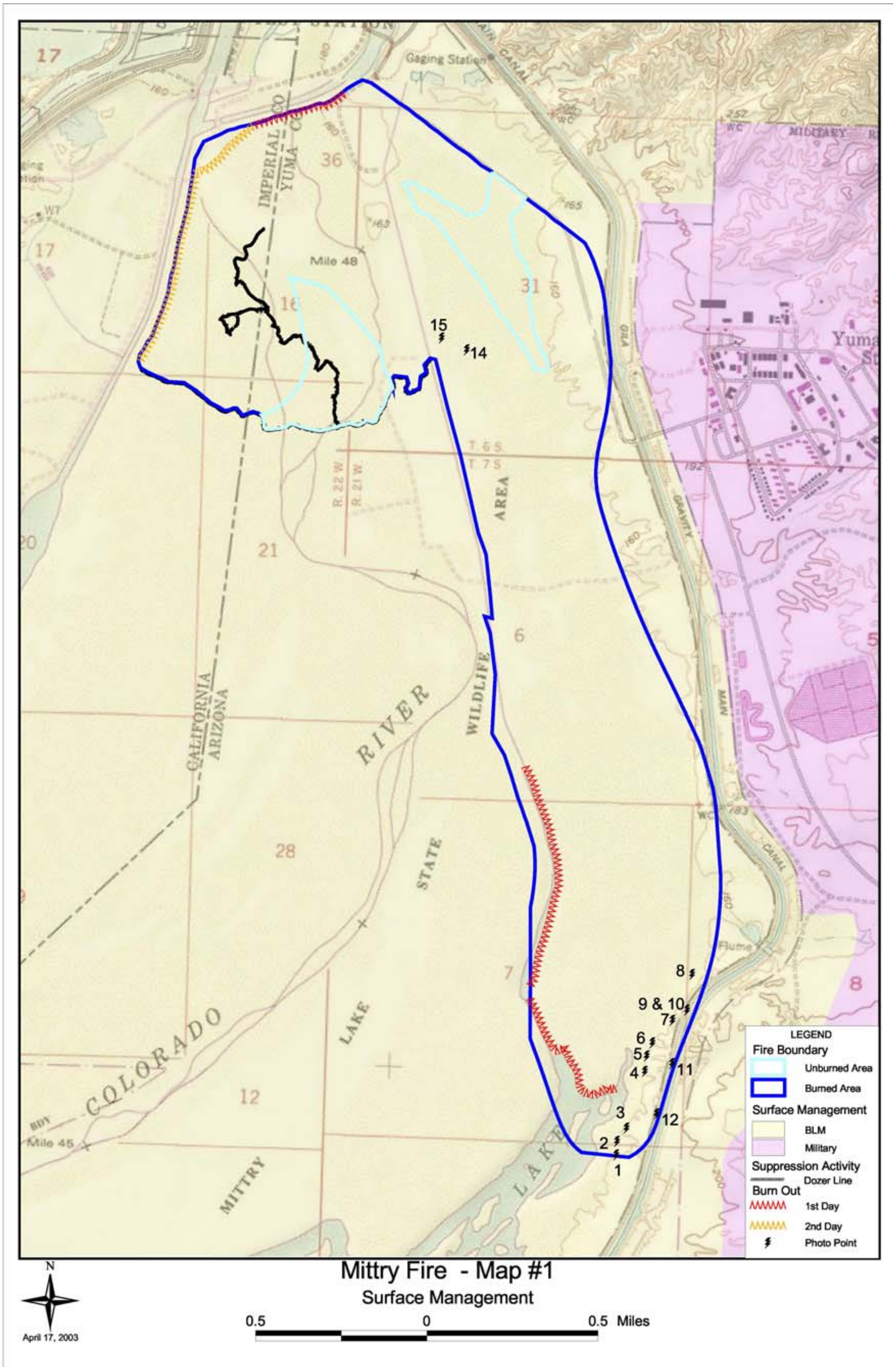
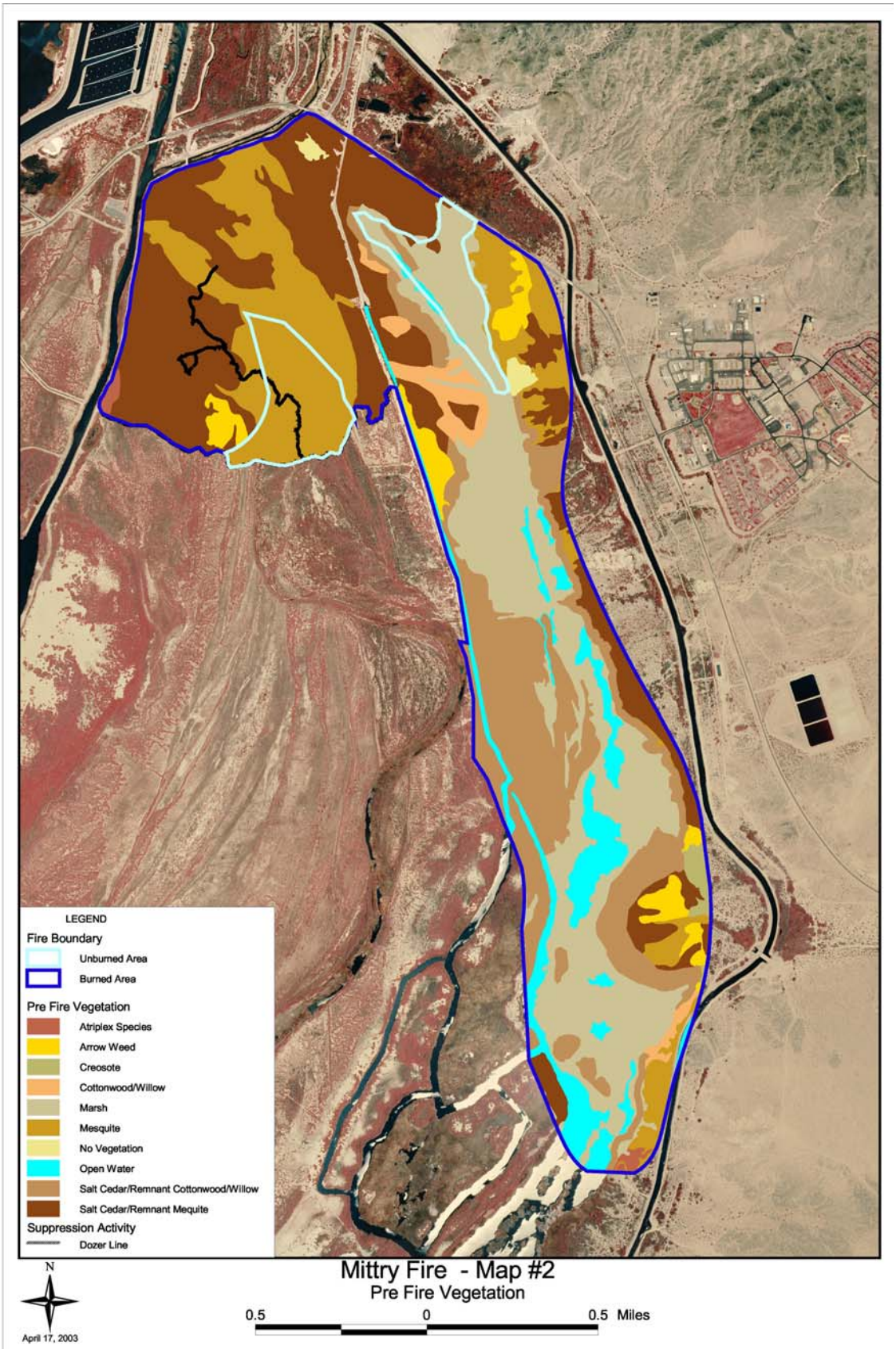
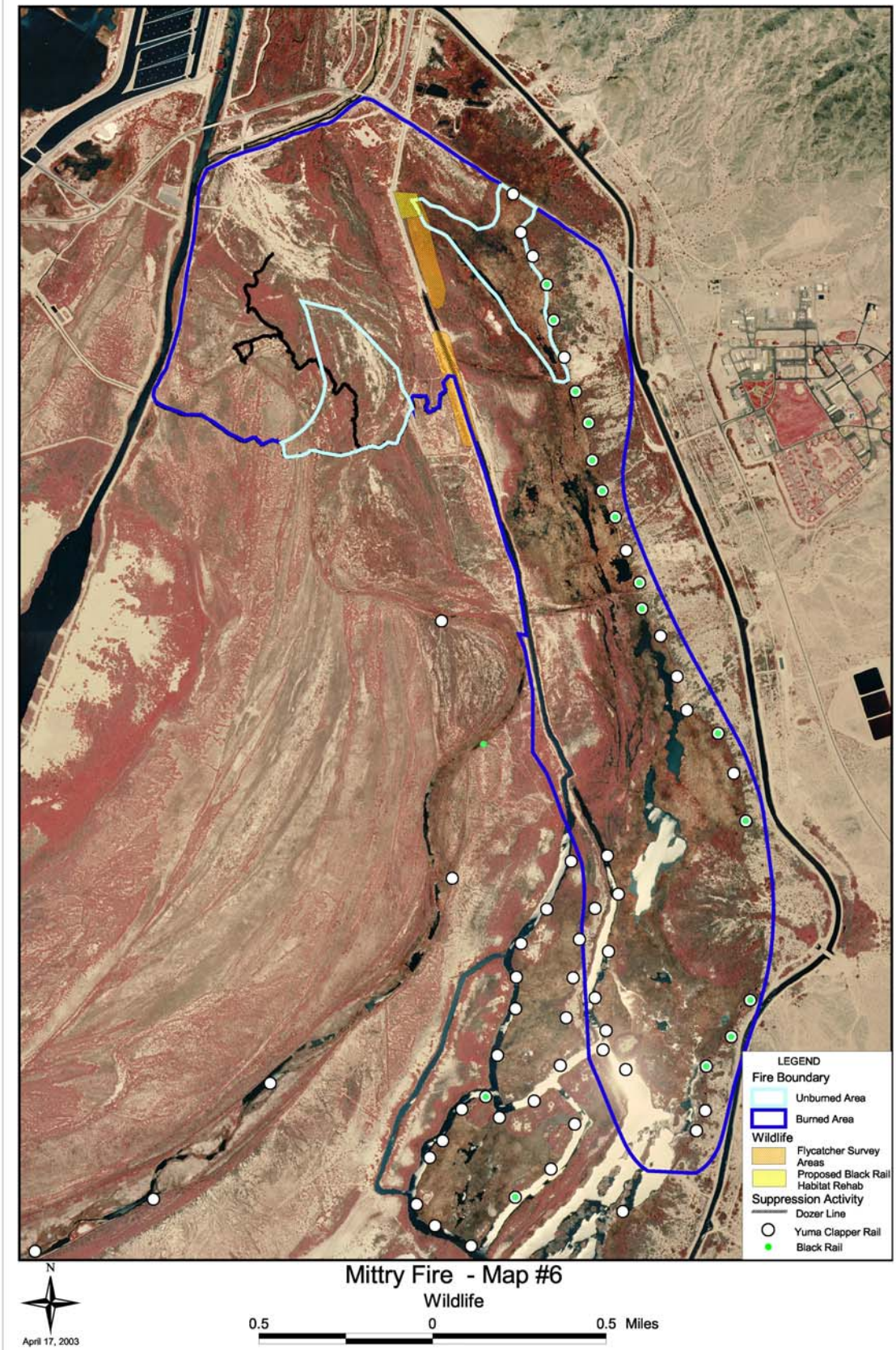
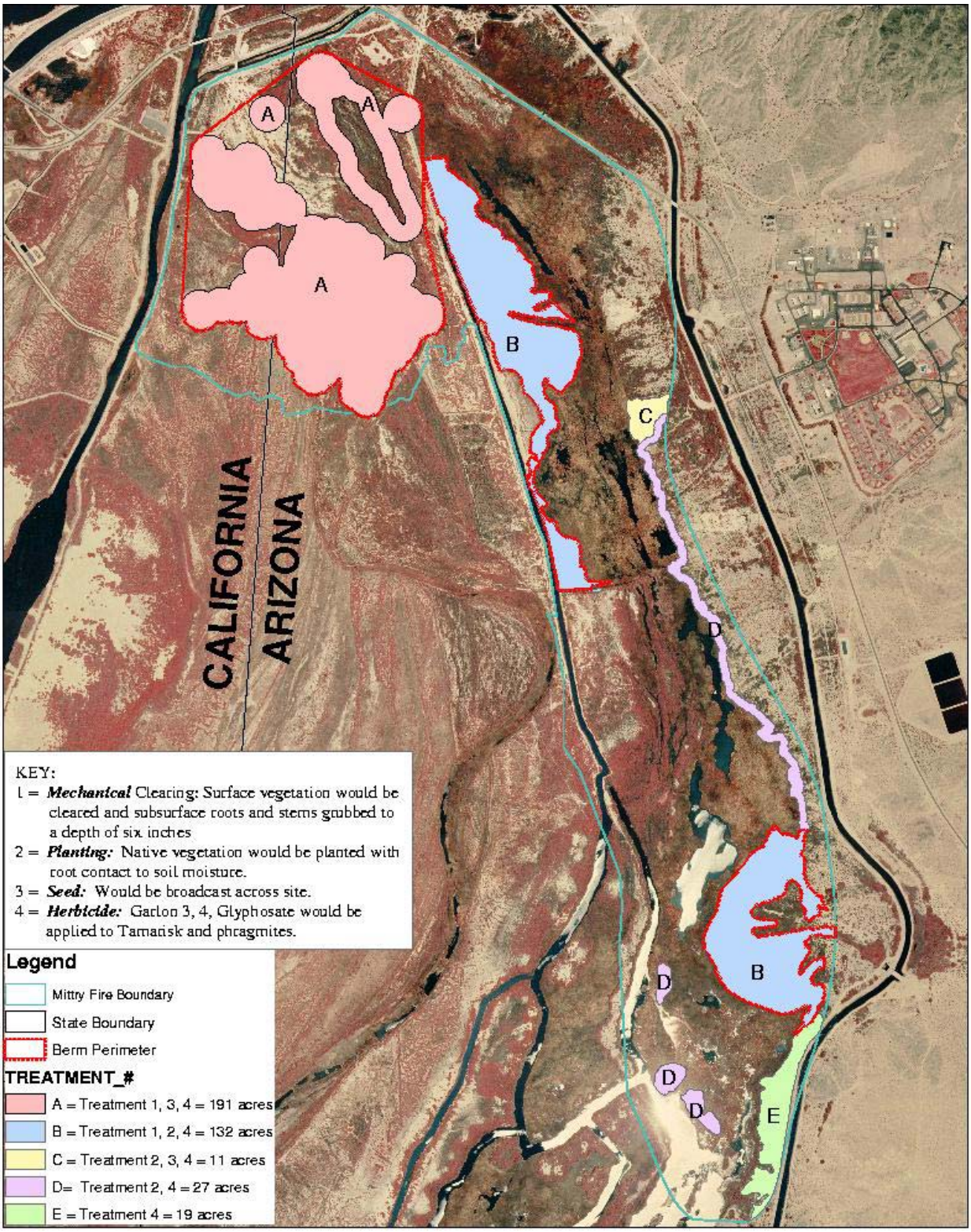
Appendix E. Wildlife Species List
Appendix F. Pesticide Use Proposal
Appendix G. Spill Contingency Plan
Appendix H. Visual Contrast Rating Worksheet
Appendix I. Biological Consultation Documents
Appendix J. Photo Points
Appendix K. Water Quality Monitoring Plan


Mittry Fire - Map #1
Surface Management
LEGEND
Fire Boundary
Unburned Area
Burned Area
Surface Management
BLM
Military
Suppression Activity
Dozer Line
Burn Out
1st Day
2nd Day
Photo Point
0.5
0
0.5 Miles
N
April 17, 2003
Gaging Station
Mile 48
Mile 45
IMPERIAL CO
YUMA CO
CALIFORNIA
ARIZONA
COLORADO
RIVER
MITTRY
LAKE
STATE
WILDLIFE
AREA
GRAVITY
MAIN
CANAL
Flume
T. 6 S
T. 7 S
R. 22 W.
R. 21 W.
9 & 10


LEGEND
Fire Boundary
Unburned Area
Burned Area
Pre Fire Vegetation
Atriplex Species
Arrow Weed
Creosote
Cottonwood/Willow
Marsh
Mesquite
No Vegetation
Open Water
Salt Cedar/Remnant Cottonwood/Willow
Salt Cedar/Remnant Mequite
Suppression Activity
Dozer Line
N
April 17, 2003
Mittry Fire - Map #2
Pre Fire Vegetation
0.5
0
0.5 Miles


LEGEND
Fire Boundary
Unburned Area
Burned Area
Wildlife
Flycatcher Survey Areas
Proposed Black Rail Habitat Rehab
Suppression Activity
Dozer Line
Yuma Clapper Rail
Black Rail
N
April 17, 2003
Mittry Fire - Map #6
Wildlife
0.5
0
0.5 Miles


A
A
A
B
C
D
B
D
D
D
E
CALIFORNIA
ARIZONA
KEY:
1 = Mechanical Clearing: Surface vegetation would be cleared and subsurface roots and stems grubbed to a depth of six inches
2 = Planting: Native vegetation would be planted with root contact to soil moisture.
3 = Seed: Would be broadcast across site.
4 = Herbicide: Garlon 3, 4, Glyphosate would be applied to Tamarisk and phragmites.
Legend
Mittry Fire Boundary
State Boundary
Berm Perimeter
TREATMENT_#
A = Treatment 1, 3, 4 = 191 acres
B = Treatment 1, 2, 4 = 132 acres
C = Treatment 2, 3, 4 = 11 acres
D= Treatment 2, 4 = 27 acres
E = Treatment 4 = 19 acres
N
June 26, 2003
Mittry Fire –Map #4
Treatment
0.4 0.2 0 0.4
Miles

Appendix E – Animals known too occur in tamarisk habitat and the BLM Yuma district.

Common Name	Scientific Name
Birds	
Ring-necked Pheasant	*Phasianus colchicus*
Gambel's Quail	*Callipepla gambelii*
Mourning Dove	*Zenaida macroura*
Greater Roadrunner	*Geococcyx californianus*
Rufous Hummingbird	*Selaphorus rufus*
Black-chinned Hummingbird	*Archilochus alexandri*
Downy Woodpecker	*Picoides pubescens*
Northern Flicker	*Colaptes auratus*
Western Wood-Pewee	*Contopus sordidulus*
Southwestern Willow Flycatcher	*Empidonax traillii extimus*
Ash-throated Flycatcher	*Myiarchus cinerascens*
Western Kingbird	*Tyrannus verticalis*
Bewick's Wren	*Thryomanes bewickii*
House Wren	*Troglodytes aedon*
American Robin	*Turdus migratorius*
Plumbeous Vireo	*Vireo plumbeus*
Cassin's Vireo	*Vireo cassinii*
Warbling Vireo	*Vireo gilvus*
Orange-crowned Warbler	*Vermivora celata*
Virgina's Warbler	*Vermivora virginiae*
Lucy's Warbler	*Vermivora luciae*
Yellow Warbler	*Dendroica petechia*
Yellow-rumped Warbler	*Dendroica coronata*
MacGillivray's Warbler	*Oporornis tolmiei*
Common Yellowthroat	*Geothlypis trichas*

Wilson's Warbler	*Wilsonia pusilla*
Yellow-breasted Chat	*Icteria virens*
Wesetern Tanager	*Piranga ludoviciana*
Black-headed Grosbeak	*Pheucticus melanocephalus*
Blue Grosbeak	*Guiraca caerulea*
Lazuli Bunting	*Passerina amoena*
Spotted Towhee	*Pipilo maculatus*
Chipping Sparrow	*Spizella passerina*
White-crowned Sparrow	*Zonotrichia leucophrys*
Brown-headed Cowbird	*Molothrus ather*
Northern Oriole	*Icterus galbula*
House Finch	*Carpodacus mexicanus*
Lesser Goldfinch	*Carduelis psaltria*
Verdin	*Auriparus flaviceps*
Black-tailed Gnatcatcher	*Polioptila melanura*
Loggerhead Shrike	*Lanius ludovicianus*
Cactus Wren	*Campylorhynchus brunneicapillus*
Yellow-billed Cuckoo	*Coccyzus americanus*
Mammals	
Desert Cottontail	*Sylvilagus audubonii*
Coyote	*Canis latrans*
Raccoon	*Procyon lotor*
Mountain Lion	*Felis concolor*
Bobcat	*Felis concolor*
Western Harvest Mouse	*Reithrodontomys megalotis*
Hispid Cotton Rat	*Sigmodon hispidus*

U.S. DEPARTMENT OF INTERIOR

BLM PESTICIDE USE PROPOSAL

PROPOSAL NUMBER: AZ-PUP-03-050-03

EA NUMBER: EA-AZ-050- 2003-0039

STATE: Arizona, California
DISTRICT: Yuma Field Office
RESOURCE AREA: Yuma Field Office
COUNTY: Yuma, Arizona
Imperial, California

DATE: June 27, 2003

LOCATION: Mittry Lake Wildlife Area

Meridian	Township	Range	Section(s)	Subdivision(s)	Acres
Gila Salt River	T. 6 S.	R. 21 W.	30,31		
	T. 7 S.	R. 21 W.	5,6,7,8,18,19		
	T. 6 S.	R. 22 W.	25,26		
San Bernardino	T.15 S.	R. 24 E.	16,17,20,21		
					1,313
UTM N/A N E		LATITUDE N 32 ^{o} 51' 39"		LONGITUDE W 114^{o} 26' 55"	

DURATION OF PROPOSAL: Three years

I. PESTICIDE APPLICATION (including mixtures and surfactants and colorants):

TRADE NAME(s): Stalker mixed with Kinetic or Mor-Act, Sta-put

COMMON NAME(s): Imazapyr, non-ionic surfactant, crop-oil concentrate or diesel oil, deposition aid.

EPA REGISTRATION NUMBER(s):
Stalker –EPA Reg. No. 241-398, Kinetic – California State Reg. No. 38167-50012, Mor-Act- California State Reg. No. 2935-50098

MANUFACTURER(s): Stalker-BASF Corporation, Kinetic-Setre, Mor-Act- Wilber Ellis, Sta-put-Setre.

FORMULATION: Liquid \ XX \ Dry \ \

METHOD OF APPLICATION: Backpack sprayer, vehicle-mounted spray tank.

MAXIMUM RATE OF APPLICATION:

USE UNIT ON LABEL: Imazypyr = 1.5 ai/acre
Glyphosate = 3.5lb ai/acre

POUNDS ACTIVE INGREDIENT/ACRE: All materials will be used according to label: Imazypyr= 1.5 lb ai/acre
Glyphosate = 3.5 lb ai/acre

INTENDED RATE OF APPLICATION: Imazapyr plus glyphosate mix (0.6 +0.6 kg ai/ha) in water with a 0.25% v/v non-ionic surfactant and a 0.07% v/v drift control agent. As a low volume foliar application in California, 3-5 % Stalker would be mixed in water and adjuvant or penetrating oil.

APPLICATION DATE(S): Fall 2003 to Spring 2006

NUMBER OF APPLICATIONS: Twice/year/site with two spot follow-up applications on resprouts. A third year of application will be used if needed.

II. PEST (List specific pest(s) and reason(s) for application):
salt cedar (*Tamarisk spp.*) and annual weeds/grasses

III. MAJOR DESIRED PLANT SPECIES PRESENT:
Cottonwood and willow and mesquite

IV. TREATMENT SITE: (Describe land type or use, size, stage of growth of target species, slope and soil type).
Treatment site is the Mittry Lake Wildlife area on the Lower Colorado River. Treatment is to kill salt cedar resprouts regenerating after 1300 acre wildfire. Soils are level alluvial deposits composed of silt, clay and sand. Parts of project area (323 acres) will receive an initial mechanical treatment, mulching above ground resprouts and surfacing root balls. For 57 acres, herbicide will be initial treatment following the wildfire. Overall, 380 acres will be treated with herbicide.

ESTIMATED ACRES: The 380 acres will be treated for salt cedar.

V. SENSITIVE ASPECTS AND PRECAUTIONS: (Describe sensitive areas [e.g., marsh, endangered, threatened, candidate and sensitive species habitat] and distance to treatment site. List measures taken to avoid impact to sensitive areas).

No plant species listed as sensitive by the BLM are present in the affected area of the Lower Colorado River. Federally listed animals are: southwestern willow flycatcher, bald eagle, Yuma clapper rail. Yuma clapper rail habitat is in cattail and bullrush marsh. No marsh vegetation will be sprayed and applicators will exercise caution in avoiding these areas by leaving a three-foot buffer between sprayed areas and cattail/bullrush areas. A water quality monitoring plan will ensure that surface waters are not contaminated.

VI. NONTARGET VEGETATION: (Describe impacts to nontarget vegetation in the project area).

Nontarget vegetation in order of prevalence is willow, cottonwood, arrowweed, cattail, bulrush, seep willow, quailbush and mesquite.

VII. INTEGRATED WEED MANAGEMENT: (Describe other aspects of the IWM program that are being used in addition to this chemical application in the project area).

Salt cedar has already been burned by a wildfire and is resprouting. Parts of project area (323 acres) will receive initial mechanical treatment, mulching above ground salt cedar and surfacing root balls. Additionally, project site will be planted and seeded with native species including cottonwood, willow, mesquite and quailbush. These planted species will help out compete the salt cedar for water, sunlight and nutrients.

Originator's Signature:_____ Date:_____ Telephone Number:

Originator's Company Name:

Certified Pesticide Applicator's Signature:

BLM Office Weed\Pesticide Coordinator's Signature: _____ Date:

BLM Manager's Approval:_____ Date:

State Coordinator's Signature _____ Date:

Deputy State Director's Approval:_____ Date:

___ CONCUR OR APPROVED ___ NOT CONCUR OR DISAPPROVED
___ CONCUR OR APPROVED WITH MODIFICATIONS Modifications: Any changes to this proposal by the State Pesticide Coordinator will be listed in an attached memo to the Manager requesting approval from the Deputy State Director.

U.S. DEPARTMENT OF INTERIOR

BLM PESTICIDE USE PROPOSAL

PROPOSAL NUMBER: AZ-PUP-03-050-02

EA NUMBER: EA-AZ-050- 2003-0039

STATE: Arizona, California
RESOURCE AREA: Yuma Field Office

DISTRICT: Yuma Field Office
COUNTY: Yuma, Arizona
Imperial, California

DATE: July 27, 2003

LOCATION: Mittry Lake Wildlife Area

Meridian	Township	Range	Section(s)	Subdivision(s)	Acres
Gila Salt River	T. 6 S.	R. 21 W.	30,31		
	T. 7 S.	R. 21 W.	5,6,7,8,18,19		
	T. 6 S.	R. 22 W.	25,26		
San Bernardino	T.15 S.	R. 24 E.	16,17,20,21		
					1,313
UTM N/A N E		LATITUDE N 32 ^{o} 51' 39"		LONGITUDE W 114^{o} 26' 55"	

DURATION OF PROPOSAL: Three years

I. PESTICIDE APPLICATION (including mixtures and surfactants and colorants):

TRADE NAME(s): Roundup mixed with Cide-Kick

COMMON NAME(s):glyphosate, surfactant

EPA REGISTRATION NUMBER(s):

Roundup= EPA Reg. No. 524-475, Cide Kick = CAS Nos. 68956-56-9 and 127087-87-0

MANUFACTURER(s): Roundup=Monsanto, Cide Kick= Brewer International

FORMULATION: Liquid \ XX \ Dry \ \

METHOD OF APPLICATION: Backpack sprayer, vehicle-mounted spray tank, boat mounted spray tank. Foliar application.

MAXIMUM RATE OF APPLICATION:

USE UNIT ON LABEL: Roundup = 3-5 lbs active ingredient/acre, Cide Kick = 2 lb active ingredient/acre

POUNDS ACTIVE INGREDIENT/ACRE: All materials will be used according to label: Roundup = 3-5 lbs active ingredient/acre, Cide Kick = 2lb active ingredient acre

INTENDED RATE OF APPLICATION: One to two percent (3-5 quart/acre Roundup and 2 quarts/acre Cide Kick).

APPLICATION DATE(S): Fall 2003 to Spring 2006

NUMBER OF APPLICATIONS: Twice/year/site with two spot follow-up applications on resprouts.

II. PEST (List specific pest(s) and reason(s) for application):
Giant reed (*Phragmites communis*).

III. MAJOR DESIRED PLANT SPECIES PRESENT:
Cottonwood and willow and mesquite trees.

IV. TREATMENT SITE: (Describe land type or use, size, stage of growth of target species, slope and soil type).
Treatment site is the Mittry Lake Wildlife area on the Lower Colorado River. Treatment is to kill phragmites resprouts regenerating after 1300 acre wildfire. Soils are level alluvial deposits composed of silt, clay and sand. Parts of project area (323 acres) will receive an initial mechanical treatment, mulching above ground resprouts and surfacing root balls. For 57 acres, herbicide will be initial treatment following the wildfire. Overall, 380 acres will be treated with herbicide.

ESTIMATED ACRES: The 380 acres will be treated for phragmites.

V. SENSITIVE ASPECTS AND PRECAUTIONS: (Describe sensitive areas [e.g., marsh, endangered, threatened, candidate and sensitive species habitat] and distance to treatment site. List measures taken to avoid impact to sensitive areas).

No plant species listed as sensitive by the BLM are present in the affected area of the Lower Colorado River. Federally listed animals are: southwestern willow flycatcher, bald eagle, Yuma clapper rail. Yuma clapper rail habitat is in cattail and bullrush marsh. No marsh vegetation will be sprayed and applicators will exercise caution in avoiding these areas by leaving a three-foot buffer between sprayed areas and cattail/bullrush areas. A water quality monitoring plan will ensure that surface waters are not contaminated.

VI. NONTARGET VEGETATION: (Describe impacts to nontarget vegetation in the project area).

Nontarget vegetation in order of prevalence is willow, cottonwood, arrowweed, cattail, bulrush, seep willow, quailbush and mesquite.

VII. INTEGRATED WEED MANAGEMENT: (Describe other aspects of the IWM program that are being used in addition to this chemical application in the project area).

Phragmites has already been burned by a wildfire and is resprouting. Parts of project area (323 acres) will receive initial mechanical treatment, mulching above ground vegetation. Additionally, project site will be planted and seeded with native species including cottonwood, willow, mesquite and quailbush. These planted species will help out compete the phragmites for water, sunlight and nutrients.

Originator's Signature:_____ Date:_____ Telephone Number:

Originator's Company Name:

Certified Pesticide Applicator's Signature:

BLM Office Weed\Pesticide Coordinator's Signature: _____ Date:

BLM Manager's Approval:_____ Date:

State Coordinator's Signature _____ Date:

Deputy State Director's Approval:_____ Date:

___ CONCUR OR APPROVED ___ NOT CONCUR OR DISAPPROVED

___ CONCUR OR APPROVED WITH MODIFICATIONS Modifications: Any changes to this proposal by the State Pesticide Coordinator will be listed in an attached memo to the Manager requesting approval from the Deputy State Director.

U.S. DEPARTMENT OF INTERIOR

BLM PESTICIDE USE PROPOSAL

PROPOSAL NUMBER: AZ-PUP-03-050-01

EA NUMBER: EA-AZ-050- 2003-0039

STATE: Arizona, California
RESOURCE AREA: Yuma Field Office

DISTRICT: Yuma Field Office
COUNTY: Yuma, Arizona
Imperial, California

DATE: June 27, 2003

LOCATION: Mittry Lake Wildlife Area

Meridian	Township	Range	Section(s)	Subdivision(s)	Acres
Gila Salt River	T. 6 S.	R. 21 W.	30,31		
	T. 7 S.	R. 21 W.	5,6,7,8,18,19		
	T. 6 S.	R. 22 W.	25,26		
San Bernardino	T.15 S.	R. 24 E.	16,17,20,21		
					1,313
UTM N/A N E		LATITUDE N 32 º 51' 39"		LONGITUDE W 114º 26' 55"	

DURATION OF PROPOSAL: Three years

I. PESTICIDE APPLICATION (including mixtures and surfactants and colorants):

TRADE NAME(s): Garlon 4 mixed with Pro-Basal Oil;

COMMON NAME(s): Triclopyr, surfactant/paraffinic petroleum oil;

EPA REGISTRATION NUMBER(s):

Garlon 4 = EPA Reg. No. 62719-40, Pro-Basal Oil = (No registration),

MANUFACTURER(s): Garlon4 = Dow AgroSciences, , Pro-Basal Oil = Target Specialty Products

FORMULATION: Liquid \ XX \ Dry \ \

METHOD OF APPLICATION: Backpack sprayer, vehicle-mounted spray tank. Foliar application, cut-stump application and/or basal bark treatment.

MAXIMUM RATE OF APPLICATION:

USE UNIT ON LABEL: triclopyr = 1.5 lb. ai/acre

POUNDS ACTIVE INGREDIENT/ACRE: All materials will be used according to label: Garlon 4 = 1.5 lbs active ingredient /acre; Pro-Basal Oil = 2 lbs active ingredient/acre

INTENDED RATE OF APPLICATION: 50/50 garlon 4 and pro-basal oil.

APPLICATION DATE(S): Fall 2003 to Spring 2006

NUMBER OF APPLICATIONS: Twice/year/site with two spot follow-up applications on resprouts. A third year of application will be used if needed.

II. PEST (List specific pest(s) and reason(s) for application):
salt cedar (*Tamarisk spp.*) and annual weeds/grasses

III. MAJOR DESIRED PLANT SPECIES PRESENT:
Cottonwood and willow and mesquite

IV. TREATMENT SITE: (Describe land type or use, size, stage of growth of target species, slope and soil type).
Treatment site is the Mittry Lake Wildlife area on the Lower Colorado River. Treatment is to kill salt cedar resprouts regenerating after 1300 acre wildfire. Soils are level alluvial deposits composed of silt, clay and sand. Parts of project area (323 acres) will receive an initial mechanical treatment, mulching above ground resprouts and surfacing root balls. For 57 acres, herbicide will be initial treatment following the wildfire. Overall, 380 acres will be treated with herbicide.

ESTIMATED ACRES: The 380 acres will be treated for salt cedar.

V. SENSITIVE ASPECTS AND PRECAUTIONS: (Describe sensitive areas [e.g., marsh, endangered, threatened, candidate and sensitive species habitat] and distance to treatment site. List measures taken to avoid impact to sensitive areas).

No plant species listed as sensitive by the BLM are present in the affected area of the Lower Colorado River. Federally listed animals are: southwestern willow flycatcher, bald eagle, Yuma clapper rail. Yuma clapper rail habitat is in cattail and bullrush marsh. No marsh vegetation will be sprayed and applicators will exercise caution in avoiding these areas by leaving a three-foot buffer between sprayed areas and cattail/bullrush areas. A water quality monitoring plan will ensure that surface waters are not contaminated.

VI. NONTARGET VEGETATION: (Describe impacts to nontarget vegetation in the project area).

Nontarget vegetation in order of prevalence is willow, cottonwood, arrowweed, cattail, bulrush, seep willow, quailbush and mesquite.

VII. INTEGRATED WEED MANAGEMENT: (Describe other aspects of the IWM program that are being used in addition to this chemical application in the project area).

Salt cedar has already been burned by a wildfire and is resprouting. Parts of project area (323 acres) will receive initial mechanical treatment, mulching above ground salt cedar and surfacing root balls. Additionally, project site will be planted and seeded with native species including cottonwood, willow, mesquite and quailbush. These planted species will help out compete the salt cedar for water, sunlight and nutrients.

Originator's Signature:_____ Date:_____ Telephone Number:

Originator's Company Name:

Certified Pesticide Applicator's Signature:

BLM Office Weed\Pesticide Coordinator's Signature: _____ Date:

BLM Manager's Approval:_____ Date:

State Coordinator's Signature _____ Date:

Deputy State Director's Approval:_____ Date:

___ CONCUR OR APPROVED ___ NOT CONCUR OR DISAPPROVED
___ CONCUR OR APPROVED WITH MODIFICATIONS Modifications: Any changes to this proposal by the State Pesticide Coordinator will be listed in an attached memo to the Manager requesting approval from the Deputy State Director.

U.S. DEPARTMENT OF INTERIOR

BLM PESTICIDE USE PROPOSAL

PROPOSAL NUMBER: AZ-PUP-03-050-01

EA NUMBER: EA-AZ-050- 2003-0039

STATE: Arizona, California
RESOURCE AREA: Yuma Field Office

DISTRICT: Yuma Field Office
COUNTY: Yuma, Arizona
Imperial, California

DATE: June 27, 2003

LOCATION: Mittry Lake Wildlife Area

Meridian	Township	Range	Section(s)	Subdivision(s)	Acres
Gila Salt River	T. 6 S.	R. 21 W.	30,31		
	T. 7 S.	R. 21 W.	5,6,7,8,18,19		
	T. 6 S.	R. 22 W.	25,26		
San Bernardino	T.15 S.	R. 24 E.	16,17,20,21		
					1,313
UTM N/A N E		LATITUDE N 32 º 51' 39"		LONGITUDE W 114º 26' 55"	

DURATION OF PROPOSAL: Three years

I. PESTICIDE APPLICATION (including mixtures and surfactants and colorants):

TRADE NAME(s): Garlon 4 mixed with Pro-Basal Oil;

COMMON NAME(s): Triclopyr, surfactant/paraffinic petroleum oil;

EPA REGISTRATION NUMBER(s):
Garlon 4 = EPA Reg. No. 62719-40, Pro-Basal Oil = (No registration),

MANUFACTURER(s): Garlon4 = Dow AgroSciences, , Pro-Basal Oil = Target Specialty Products

FORMULATION: Liquid \ XX \ Dry \ \

METHOD OF APPLICATION: Backpack sprayer, vehicle-mounted spray tank. Foliar application, cut-stump application and/or basal bark treatment.

MAXIMUM RATE OF APPLICATION:

USE UNIT ON LABEL:

POUNDS ACTIVE INGREDIENT/ACRE:

INTENDED RATE OF APPLICATION: 50/50 garlon 4 and pro-basal oil.

APPLICATION DATE(S): Fall 2003 to Spring 2006

NUMBER OF APPLICATIONS: Twice/year/site with two spot follow-up applications on resprouts. A third year of application will be used if needed.

II. PEST (List specific pest(s) and reason(s) for application):
salt cedar (*Tamarisk spp.*) and annual weeds/grasses

III. MAJOR DESIRED PLANT SPECIES PRESENT:
Cottonwood and willow and mesquite

IV. TREATMENT SITE: (Describe land type or use, size, stage of growth of target species, slope and soil type).
Treatment site is the Mittry Lake Wildlife area on the Lower Colorado River. Treatment is to kill salt cedar resprouts regenerating after 1300 acre wildfire. Soils are level alluvial deposits composed of silt, clay and sand. Parts of project area (323 acres) will receive an initial mechanical treatment, mulching above ground resprouts and surfacing root balls. For 57 acres, herbicide will be initial treatment following the wildfire. Overall, 380 acres will be treated with herbicide.

ESTIMATED ACRES: The 380 acres will be treated for salt cedar.

V. SENSITIVE ASPECTS AND PRECAUTIONS: (Describe sensitive areas [e.g., marsh, endangered, threatened, candidate and sensitive species habitat] and distance to treatment site. List measures taken to avoid impact to sensitive areas).

No plant species listed as sensitive by the BLM are present in the affected area of the Lower Colorado River. Federally listed animals are: southwestern willow flycatcher, bald eagle, Yuma clapper rail. Yuma clapper rail habitat is in cattail and bullrush marsh. No marsh vegetation will be sprayed and applicators will exercise caution in avoiding these areas by leaving a three-foot buffer between sprayed areas and cattail/bullrush areas. A water quality monitoring plan will ensure that surface waters are not contaminated.

VI. NONTARGET VEGETATION: (Describe impacts to nontarget vegetation in the project area).

Nontarget vegetation in order of prevalence is willow, cottonwood, arrowweed, cattail, bullrush and mesquite.

VII. INTEGRATED WEED MANAGEMENT: (Describe other aspects of the IWM program that are being used in addition to this chemical application in the project area).

Salt cedar has already been burned by a wildfire and is resprouting. Parts of project area (323 acres) will receive initial mechanical treatment, mulching above ground salt cedar and surfacing root balls. Additionally, project site will be planted and seeded with native species including cottonwood, willow, mesquite and quailbush. These planted species will help out compete the salt cedar for water, sunlight and nutrients.

Originator's Signature:_____ Date:_____ Telephone Number:

Originator's Company Name:

Certified Pesticide Applicator's Signature:

BLM Office Weed\Pesticide Coordinator's Signature: _____ Date:

BLM Manager's Approval:_____ Date:

State Coordinator's Signature _____ Date:

Deputy State Director's Approval:_____ Date:

___ CONCUR OR APPROVED ___ NOT CONCUR OR DISAPPROVED

___ CONCUR OR APPROVED WITH MODIFICATIONS Modifications: Any changes to this proposal by the State Pesticide Coordinator will be listed in an attached memo to the Manager requesting approval from the Deputy State Director.

SPILL PREVENTION PLAN

When handled, prepared and used as directed, triclopyr (Garlon4, Garlon 3A, Pathfinder II) imazapyr (Arsenal, Stalker) and glyphosate (Roundup, Reward, Rodeo, Aquamaster) have little potential to cause environmental concerns or personal injury. Measures such as the use of proper protective clothing, understanding the nature and chemical properties of the herbicide, and knowledge of appropriate first-aid procedures are fundamental to applying herbicides in a safe manner. Applicators will be certified or directly supervised by certified applicators. READ THE LABEL!

A. HERBICIDE STORAGE - Pesticides should be stored in fire resistant, metal storage cabinets in a predesignated area that is also fire resistant. The area chosen should be kept dry, cool, and have an exhaust fan for proper ventilation. Furthermore, the area should be secured with a lock and posted with warning signs. Unopened bottles of pesticide should have the date written on the label as they were received and each time they were used prior to final disposal.

B. TRANSPORT - Intact containers of herbicide should be transported in a cushioned, leak proof box with a securable lid. The box should be firmly secured to the non-wooden open bed of a pickup truck or utility trailer. Pesticides are not to be transported in the truck cab or inside of a passenger car. The load should be checked periodically en route to the treatment site.

C. MIXING and APPLICATION - Have the appropriate tools on hand and dike the area where mixing is to take place. Also have the appropriate absorbents ready, should they be needed. Leave as little skin area exposed, so wear the proper protective gear such as a hardhat with a clear plastic faceguard/eyewear, a long sleeve shirt and long pants or disposable lightweight coveralls, and rubber boots and rubber gloves.

Graduated cylinders of various capacities (up to 1L should be adequate), funnels, and containers to hold the resultant herbicide, carrier mix, and dispensers are essential items as well.

D. SPILLS - If an incident should occur resulting in a spill on an individual(s), on soil, or in water, the following procedures should be followed in each case:

1. Body contact spill - contaminated clothing should be removed and copious amounts of water poured on the affected area(s) for 10-15 minutes. Transport to a predetermined hospital or clinic if the herbicide has been ingested or inhaled.

2. Soil spill - contaminated soil should be shoveled into a leakproof container or can be spread on heavy plastic sheets. However, every attempt should be made to prevent the herbicide from spreading over the soil surface (diking, adsorbents, absorbents, etc.). Contaminated soil should be disposed of as hazardous material.

3. Spill in water - According to trade literature, residue levels of water decline very rapidly and their reduction is due to the uptake by the weeds and adsorption to suspended soil particles in the water or on the bottom mud. In the case of spill, dilution would be rapid. Spill control materials such as Hazsorb, WYK, Haz-Mat Pig, Wolf Absorbent Socks and Polysorb Oil Absorbent Fabric, are available to speed up containment and cleanup. For example, since Garlon and Roundup emulsify in water but separate quickly, small Polysorb Oil Absorbent Fabric booms could be used to absorb and contain the herbicide. Whatever the case, the appropriate material should be on hand depending on the body of water involved. The used materials can then be containerized and disposed of. The county and state water quality departments should be contacted immediately.

In each of the above cases, the Resource Area manager and hazardous materials program coordinator are to be notified immediately. Safety equipment and emergency telephone numbers of appropriate agencies should be on hand as well. In every instance, incident reports are to be completed and filed.

Appendix H – Visual Resource Management Worksheet

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date June 27, 2003
District Yuma Field Office
Resource Area
Activity (program) Fire & Resource

SECTION A. PROJECT INFORMATION

1. Project Name Mittry Lake Wildfire Emergency Stabilization & Rehabilitation
2. Key Observation Point Junction of YPG Rd. & Gila Gravity Canal Levy Rd.
3. VRM Class Class II

4. Location
Township
Range
Section
See Table 2 in EA-AZ-050-2003-0039

5. Location Sketch
Appendix D (Map) of EA-AZ-050-2003-0039

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat terrain	Amorphus, irregular	—
LINE	Horizontal	Horizontal, complex, soft	—
COLOR	Light tans	Mixture of light green to olive green & tans	—
TEXTURE	smooth	Mostly medium to slighty coarse, random, patchy	—

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat terrain	Amorphus, irregular	
LINE	Horizontal	Horizontal, layered, complex, soft	
COLOR	Light tans	Mixture of light green to olive green & tans	
TEXTURE	Smooth	Medium to coarse, random, patchy	

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form				✓			✓					
Line				✓			✓					
Color				✓			✓					
Texture				✓			✓					

2. Does project design meet visual resource management objectives? ☑ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended ☐ Yes ☑ No (Explain on reverse side)

Evaluator's Names: Ron Morfin, Dave Repass
Date: June 27, 2

Mittry Lake Rehabilitation EA - AZ-050-2003-0039 Appendix H

SECTION D. (Continued)

Comments from item 2.

The project will restore native vegetation and enhance visual resources.

Additional Mitigating Measures (See item 3)

The project calls for non-linear, random planting of vegetation to maintain a natural, aesthetically pleasing appearance.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1985—461-988/33094

BIOLOGICAL EVALUATION FOR
BUREAU OF LAND MANAGEMENT YUMA FIELD OFFICE
ENVIRONMENTAL ASSESSMENT
EA-AZ-050-2002-0039
MITTRY LAKE WILDFIRE EMERGENCY STABILIZATION AND REHABILITATION

JUNE 2003

INTRODUCTION

The Bureau of Land Management (BLM) Yuma Field Office (YFO) is cooperating with federal, state and local agencies to implement the Mittry Lake wildfire emergency stabilization and rehabilitation plan. YFO prepared an Environmental Assessment, EA-AZ-050-2002-0039, titled Mittry Lake Wildfire Emergency Stabilization and Rehabilitation. The EA resulted in a Finding of No Significant Impact (FONSI). The EA describes the need for Section 7 Consultation with the U. S. Fish and Wildlife Service in accordance with the Yuma District Management Plan and Amendments, the Biological Evaluation (BE) to the Service dated November 1996 and the Biological Opinion rendered by the Service on March 26, 1998. Site specific BEs are required for any action taken in aquatic habitats as agreed to by the Service and YFO.

The Lower Colorado River is one of the most managed riparian systems in the United States. Dams and diversions have narrowed the once winding flood plain, changing the conditions necessary for success of native flora and fauna. This ecosystem has also been altered due to the proliferation of invasive tamarisk (*Tamarix* spp.). Non-native tamarisk, currently dominates the lower Colorado River, and poses hazardous fuel conditions that increase the threat of wildland fire. Critical habitat for the southwest willow flycatcher SWFL and Yuma clapper rail YCR is not designated.

On March 12, 2003 the Mittry Lake Fire was discovered. The fire was human caused and spread rapidly throughout both marsh and upland fuels. Lack of access created a high safety risk for firefighters. Indirect methods of attack were used to combat the rapidly spreading fire. The fire was controlled on March 16, 2003 with the area burned totaling 1313 acres. An Emergency Stabilization and Rehabilitation Plan was written and funded for the fiscal years 2003-2005.

YFO proposes to employ integrated pest management (IPM) techniques including, chemical and mechanical, and biophysical control to remove the hazardous fuel tamarisk. YFO would then engineer the project area to grow native riparian species such as cottonwood (*Populus fremontii*), willow (*Salix* spp.), mesquite (*Prosopis* spp.), quailbush (*Atriplex* spp.), arrowweed (*Pluchea sericea*), seep willow (*Baccharis glutinosa* spp), salt grass (*Distichlis spicata*), desert willow (*Chilopsis linearis*). four-wing saltbush (*Atriplex canescens*), desert saltbush (*Atriplex polycarpa*), and pickleweed (*Allenrolfea occidentalis*). Native riparian flora is expected to enhance the habitat value of the project area increasing wildlife diversity and numbers. After planting, maintenance and monitoring of the project area would occur, so the project could be recorded and evaluated as standard with emergency stabilization and rehabilitation projects.

PERTINENT SPECIES AND HABITAT

The proposed action may affect the following listed endangered/threatened species and/or critical habitat within the action area:

a. Yuma clapper rail *Rallus longirostris yumanensis*
b. Southwestern willow flycatcher *Empidonax traillii extimus*
c. Bald eagle *Haliaeetus leucocephalus*
d. Brown pelican *Pelecanus occidentalis*
e. Razorback sucker *Xyrauchen texanus*

GEOGRAPHIC AREA

Mittry Lake Wildlife Area is located north of the city of Yuma in southwestern Arizona. The proposed project site lies a quarter mile south of Imperial Dam and stretches south 5 kilometers. The fire spanned the distance between the Gila Main Gravity Canal and the Old Colorado River channel. A total of 1313 acres were burned, the wildfire was a stand replacement fire consuming all vegetation. Tamarisk, willow, cottonwood, arrowweed (*Pluchea sericia*), seep willow, mesquite, quailbush, cattail (*Typha domignesis*), bullrush (*Scirpus* spp.), and common reed (*Phragmities communis*) burned. The wildfire revealed many unknown landforms underneath the dense stands of tamarisk. Several channels and backwater sloughs were found within the wildfire area. Seeps from the Gila main gravity canal that borders the wildfire area to the east were identified. These seeps feed fresh water into the marsh, supporting the bulrush vegetation. Mittry Lake Wildlife Area encompasses both Mittry Lake, a historic oxbow of the Colorado River and the "old river channel", one of the few remaining stretches of unimproved Lower Colorado River. The main channel of the Colorado River, which is artificially maintained, is west of the project area with flows regulated from Imperial Dam.

ACTION OBJECTIVES

YFO proposes to remove tamarisk, and revegetate with native species within the wildfire area. Revegetation would occur in areas not dominated by marsh vegetation. The marsh vegetation has completely recovered and is as healthy or has benefited from the fire.

Monotypic tamarisk currently dominates the historic floodplain of the lower Colorado River and provides low-quality habitat for native wildlife. YFO proposes to apply herbicide and clear approximately 380 acres of burned area on the northwest arm of the Mittry Lake Wildfire. The proposed project site would be cleared with a brush hog, gryotrack or similar mulching machine. Clearing would be accomplished by mulching the tamarisk and incorporating it into the soil. This mulching would be extensive enough to effectively decrease the resprouting of the burned tamarisk. This would provide time enough for the mesquite burned in the wildfire to resprout with little competition. Seeding of *atriplex* sp would then occur on 47 acres of the mulched area. Edges of the cleared area would be burmed up to prevent wind erosion.

Suitable planting sites for cottonwood and willow trees exist on the western and eastern sides of the wildfire area. Tree plantings would be accomplished by machinery, such as a bobcat or skiff loader, for drilling holes. Soil conditions including salinity and depth to ground water would be analyzed. Further ground preparation such as, soil amendments or flooding may be required to increase site suitability. Planting of native vegetation would occur in those areas, which are identified as suitable for these species. Biologist on staff will periodically supervise the plantings near the bulrush areas as to not disturb black rails and clapper rails.

The proposed project would be implemented to minimize the impact on threatened and endangered species. No treatments would occur during the primary breeding seasons of (SWFL) and (YCR).

Herbicides covered in the BLM Environmental Assessment include triclopyr (Garlon4), which has been most effective at penetrating bark (Neill, 1985), imazapyr (Arsenal, Stalker), which is most effective for foliar application(Taylor, 1987), and glyphosate (Roundup). Herbicides are addressed in the Pesticide Use Proposal (PUP) in attached EA-AZ-050-2002-0039. Garlon would be applied with a surfactant such as vegetable oil. A certified pesticide applicator (or a person under the supervision of a certified applicator) would treat the area. Herbicide would be applied directly to tamarisk resprouts at concentrations highly improbable to affect fish or wildlife. Proposed herbicide operations would fully avoid water bodies, and not affect water quality. Herbicide application may occur both within and outside of SWFL and YCR breeding seasons. However, since those applications occurring within these breeding seasons will be implemented using non-mechanized means the effects would be no more than typical recreation in the area. Follow-up maintenance may include herbicidal applications (discussed in the EA and PUP), caging to exclude herbivores, and fertilization.

These actions would attempt to increase habitat complexity, wildlife diversity and abundance. The amount of hazardous fuels in the project area would be decreased, which reduces the threat of a wildfire. Following tamarisk reduction, native vegetation would be planted to increase vegetation complexity and attract neotropical migratory birds, small mammals, and reptiles. The YFO proposes to use a portion of it's water right to irrigate parts of the restoration site.

DETERMINATION OF EFFECTS

The following discussion explains effects of the action on pertinent species and critical habitat previously described in this biological evaluation. Endangered /threatened species and/or critical habitat within the action area that may be affected by the proposed action are listed below.

YUMA CLAPPER RAIL

Species Biology

The current range of the Yuma clapper rail in the Lower Colorado River extends from the Gulf of California in Mexico to Topock Marsh on Havasu National Wildlife Refuge (NWR) across from Needles, California. Rails have also been found in Lake Mead near Las Vegas and in the

Overton Arm. This species also occurs at Salton Sea, Wister and Finney-Ramer Wildlife Areas in California and on several major river drainages in southwestern and central Arizona. The species is also found in the Cienega de Santa Clara in Mexico. In the United States, breeding areas include Topock Gorge and Topock Marsh on the Havasu NWR, West Pond on Imperial NWR, the Arizona Channel above Imperial Dam, the Bill Williams River NWR, and Cibola NWR, Imperial Wildlife Area, and Mittry Lake, Arizona. Current research conducted by Eddleman, (1989) indicates that these populations are non-migratory.

The Yuma clapper rail is the only clapper rail to breed in freshwater marshes. Their year-round habitat requirements include a mosaic of variable-aged stands of emergent vegetation interspersed with open-water shallow pools. Breeding habitat is characterized by dense vegetation near water's edge. Nests are placed in these sites or, if available, on high sites within marshes, e.g. where banks are slightly higher than adjacent marshes

Current Conditions

The wildlife map in the BAER Environmental assessment (Appendix C) shows the survey routes done by Lin Piest, Arizona Game and Fish Department, for Yuma clapper rails. Through the ten years surveyed, the number of YCR in the Mittry Lake area has been as high as 27 in 1994 and as low as 13 in 2002. The average number of YCR in Mittry Lake is 18. Preliminary survey results from the 2003 season had counts of 22 Yuma clapper rails where the previous year counts revealed 11 rails. The overall trend of the YCR population appears to be either slightly declining or stable (Personal communications Conway 2003). No information is reported for Mittry Lake in 1995, 1996, 1998, 1999, 2000 or 2001. No survey data is reported for the "old river channel" which lies northwest of the proposed project area.

Effects of Proposed Action on Yuma Clapper Rail

No manipulation would occur within the marsh vegetation associated with Mittry Lake. Mulching of tamarisk within the project area in proximity to the marsh (10 meters) would occur as early as September 15th and not later than March 15th, after the breeding season of YCR. Clearing and mulching activities would cause noise and dust disturbance. Crayfish, the preferred diet of the Yuma clapper rail would not be affected by the proposed action.

Herbicide application may occur both within and outside of YCR breeding season. However, since those applications occurring within the breeding season will be implemented using non-mechanized means the effects would be no more than typical recreation in the area.. Herbicide application would not occur in Yuma clapper rail habitat and drift-inhibiting agents would be used to assure that chemical does not enter the adjacent marsh area. The herbicide Arsenal Imazapyr works on an enzyme only found in plants, it is not toxic to fish or wildlife. The herbicide Garlon is not expected to produce direct negative impacts to the health of the Yuma clapper rail. Garlon is moderately toxic to fish on an acute basis (LC50 between 1 and 10 mg/L). However, it would be excluded from the water making it virtually impossible to have any effect. Roundup is moderately to slightly toxic; most 96-hour LC-50 values range from 2-18 ppm. Both herbicide and draft inhibitors would be applied directly to tamarisk and phragmities and have minimal, if any affect on the surrounding marsh environment.

Other proposed projects within the Mittry Lake Wildlife Area include the South Mittry hazard fuel reduction. This project has cleared 80 acres of dense tamarisk and is proposed to restore the cleared area to native vegetation. The Bureau of Reclamation Laguna Enhancement is southwest of the Mittry rehabilitation site. This proposed project intends to increase the capacity of the reservoir to about 1500 acre-feet by dredging the Laguna reservoir and possibly the "old river channel". BLM and BOR have been coordinating regarding these potential projects.

Based on this evaluation, BLM concludes that implementation of the Mittry Lake wildfire emergency stabilization and rehabilitation plan "may affect, but is not likely to adversely affect" the Yuma clapper rail, provided that adjacent marsh vegetation is avoided, herbicide applications are only applied directly to tamarisk and phragmites in the project area, and noise and dust disturbance occurs outside the breeding season. Studies are on going as to the effects of fire on decadent cattail dominated marshes and the quality of habitat created for the YCR by this fire disturbance (Personal communication, Conway).

SOUTHWESTERN WILLOW FLYCATCHER

Species Biology

Southwestern willow flycatcher (*Empidonax traillii extimus*) is one of five subspecies of willow flycatchers that occur in North America. This small, insectivorous songbird spends its winters in Central America, and migrates to North America to breed.

During migration, southwestern willow flycatchers (SWFL) may use a variety of vegetation, which may include Fremont cottonwood (*Populus femontii*), Goodding's willow (*Salix gooddingii*), seep willow (*Baccharis glutinosa*), understory tamarisk (*Tamarix ramosissima*), monotypic tamarisk stands, saltbush (*Atriplex* spp.), irrigation ditches, and agricultural fields (Finch and others 2000).

During breeding season, SWFL prefers to nest in dense forest stands of early, successional cottonwood and willow habitat along still or slow-moving watercourses. In addition, they nest in mature stands of tamarisk. These types of plants provide SWFL with the necessary structure to support and protect their nests. SWFL typically build their nests on a forked branches 2 to 4 cm in width, and nests are further supported by several, vertical stems typically 1 to 2 cm in diameter (Sogge 2000).

SWFL are often victims of brood parasitism of brown-headed cowbirds (*Molothrus ater*) (BHCO). Female brown-headed cowbirds lay their eggs in SWFL nests, and SWFL often unwittingly raise young cowbirds while neglecting the SWFL's own offspring. Consequently, brown-headed cowbirds are contributing to decline SWFL populations.

Current Conditions

SWFL ranges from southern Nevada and southern Utah (and possibly Southwestern Colorado) through southern California, Arizona, New Mexico, and western Texas. In Arizona, this species

breeds along the Little Colorado River, and at the headwaters of the Little Colorado River near Eager and Greer; the upper San Francisco River near Alpine; along the middle Gila, Salt, and Verde rivers; along the Colorado River at Topock Marsh on the Havasu NWR and south of Yuma; and along the middle to lower San Pedro River.

SWFL occur at the Mittry Lake area. Since 1996, Bureau of Reclamation (BOR) has contracted Robert L. McKernan from San Bernardino County Museum to conduct annual SWFL surveys in the Mittry Lake area. In the Mittry Lake area, McKernan (1996) and McKernan and Braden (1997, 1998, 1999, 2000) found 12 SWFL in 1996, 7 SWFLs in 1997, 0 SWFLs in 1998, 2 SWFLs in 1999, 2 SWFL in 2000, and at least 3 SWFL in 2001. While GIS work was done at the site (5-19-03) 1 SWFL was heard singing in the unburned vegetation.

Some of these sightings possibly represent breeding birds. McKernan assumed birds detected after 10 June were potential breeders because SWFL breeding activities usually start after 10 June. The wild fire burned areas that McKernan surveyed but found no willow flycatchers. These areas were mature stands of tamarisk with few willow and cottonwood trees interspersed.

Historic habitat of lower Colorado River and the Gila River has been widely converted to agricultural fields. McKernan and Braden (2001, p 46) found 200 to 300 BHCO within the Mittry Lake area, and attributed it to nearby agricultural and recreational lands. Nearby agricultural and recreational lands include: many private, agricultural fields; the Yuma Proving Grounds main post, Hidden Shores resort and the Imperial Irrigation District housing.

There is only a small plot of land south, of Mittry Lake that may benefit SWFL populations in the area, the Pratt Tree Nursery. In 1999, a cooperative effort among federal, state, and private parties planted a 4.1 ha cottonwood and willow stand on cleared agricultural land. Currently, these flood-irrigated trees are healthy and some trees have grown up to 6 meters in height. Cottonwood and willows seem to support higher SWFL productivity than exotic plants (Sferra and other s 1997; Sogge and others 1997, cited in Sogge and Marshall 2000). In spring 2002 surveys conducted by BOR and BLM resource technicians revealed migrant SWFL using the Pratt tree farm. On 5/17/02 a survey detected two migratory SWFL in the Pratt nursery and two migratory SWFL in the Mittry Lake south project.

The wildfire destroyed 2 of the areas designated by McKernan as potential or suitable flycatcher habitat in 1995. These habitats were never known to have supported any territorial or breeding SWFL. SWFL are known to use tamarisk stands within close proximity to water for breeding. The northwest area of the Mittry lake wildfire has xeric conditions that do not meet the requirements for SWFL breeding sites.

Effects of Proposed Action on SWFL

Direct effects. If migrant SWFL's were present outside of the breeding season, they would be disturbed by noise and dust from mechanical activities.

Indirect Affects

Tamarisk would be precluded from establishing by clearing and herbicide reducing the amount of tamarisk for migrating SWFL stopover habitat. In a 3-mile radius around the center of the burn, there is approximately 5096 acres of salt cedar habitat or salt cedar-mix available for stopover habitat. Therefore, the few hundred acres is relative small compared to the 5096 acres available for stopover habitat nearby.

Cottonwood and willow plantings would reach suitable SWFL breeding habitat before tamarisk could. In addition, plantings of better-quality SWFL breeding habitat (cottonwood and willows) could be beneficial.

Although specific insect food preferences of the southwestern willow flycatcher are not well understood, it is known that they consume members of the orders Ephemiroptera, Trichoptera, Diptera, and Odonata. Data available on toxicity of Garlon to members of those orders is not available. Thus, impacts on food resources of SWFL are not known.

Tamarsik would be controlled for a period of time long enough to provide for the establishment of native species. If the project is a failure, no irreversible damage will be done to the vegetation. Tamarisk would eventually regrow with the potential for catastrophic wildfires within the next 10-15 years.

Based on the above evaluation, BLM concludes that the Mittry Lake emergency stabilization and rehabilitation "may affect, is not likely to adversely affect" the recovery of the southwestern willow flycatcher, provided that heavy equipment operations are focused outside the breeding season. Additionally, no disturbance would occur in the unburned habitat areas. The proposed action would attempt to increase the habitat quality for wildlife including threatened and endangered species in the proposed project area.

BALD EAGLE

The proposed project is located in the winter range of the bald eagle on the Havasu, Bill Williams River, Cibola, and Imperial NWRs (September through March). Occasional winter birds are also found at other locations such as the Bill Williams River Delta along the Lower Colorado River. The bald eagle does not nest on the lower Colorado River; therefore, impacts on the breeding activity of bald eagles are not expected. Foraging and roosting activities of the bald eagle may be disturbed by project implementation; however, the impact is expected to be temporary and minimal. All standing mature, dead cottonwood, and willow trees will not be included in the mulching and clearing treatments in attempts to preserve perching sites. Based on this evaluation, BLM concludes that the proposed project "may affect, is not likely to adversely affect" the bald eagle.

BROWN PELICAN

The brown pelican is typically found on the Pacific Coast and is an occasional transient in Arizona on the Lower Colorado River. Individuals are known to travel up from Mexico in the summer and fall. There are no breeding records in Arizona. It is highly unlikely brown pelicans

are present in the project area and there would be no impact on the aquatic system. The project would occur on upland sites and would not disturb wildlife within open waters of Mittry Lake. Based on this evaluation, BLM concludes that the proposed project will have ”no affect” to the brown pelican.

RAZORBACK SUCKER

Historically, razorback suckers were abundant in the Lower Colorado River and its major tributaries. Currently, they are essentially extirpated from the river below Imperial Dam. There are populations in Lake Havasu and Lake Mohave and a small population persists in Senator’s Wash. Stockings have occurred in the river above Imperial Dam and it is possible a few individuals could have passed downstream. No razorback suckers are known to inhabit Mittry Lake. The nearest area of designated critical habitat for razorback suckers is located to the north above Imperial Dam on the Colorado River.

There are no expected effects on razorback suckers by the proposed activity to implement the emergency stabilization and rehabilitation plan for the Mittry Lake wildfire. All proposed activities would occur outside of possible razorback sucker habitat and are expected to have no effect on the aquatic system. The proposed activity is not within designated critical habitat and there are no razorback suckers known to occur in Mittry Lake. Based on this evaluation, BLM concludes that the proposed project will have no affect to the razorback sucker.

EFFECT DETERMINATION AND RESPONSE REQUESTED

BLM YFO requests the Service concur with our determination the proposed action may affect, is not likely to adversely affect the Yuma clapper rail, southwestern willow flycatcher and bald eagle.

BLM YFO concludes the proposed action would have no effect to the brown pelican and razorback sucker.

LITERATURE CITED

Eddleman, W. R. 1989. *Biology of the Yuma Clapper Rail in the southwestern U.S. and northwestern Mexico.* Final Rept., Intra-Agency Agreement No. 4-AA-30-02060, U.S. Bur. Reclam., Yuma Proj. Off., Yuma, AZ.

Finch, D. M., J. F. Kelly, et al. (2000). Migration and winter ecology. Status, ecology, and conservation of the Southwestern Willow Flycatcher. D. M. Finch and S. H. Stoleson. Ogden, Utah, U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station: 131.

McKernan, R.L. and Braden, G. (2001). *Status, Distribution, and Habitat Affinities of the Southwestern Willow Flycatcher Along the Lower Colorado River Year 4-1999.* pp. 44, 5, 7.

McKernan, R.L. and Braden, G. (2001). *Status, Distribution and Habitat Affinities of the Southwestern Willow Flycatcher Along the Lower Colorado River Year 5-2000.* pp. 14, 46, 59, 81, 83.

Neill, W.M. (1985). "Tamarisk." Fremontia 12. pp. 22-23.

Sferra, S.J., T.E. Corman, C.E. Paradzick, J.W. Rourke, J.A. Spencer, and M.W. Sumner. (1997). Arizona Partners in Flight southwestern willow flycatcher survey: 1993-1996 summary report. Nongame and Endangered Wildlife Program Technical Report 113. Arizona Game and Fish Department, Phoenix, Arizona. 104 pp.

Sogge, M.K., R.M. Marshall, S.J. Sferra, and T.J. Tibbitts. (1997). *A Southwestern Willow Flycatcher Natural History Summary and Survey Protocol*. Technical Report NPS/NAUCPRS/NRTR-97/12. USGS Colorado Plateau Research Station, Northern Arizona University, Flagstaff, Arizona.

Sogge, M.K. and R.M. Marshall. 2000. "A survey of current breeding habitats.'' Chapter 5 in D.M. Finch and S.H. Stoleson, eds., *Status, Ecology, and Conservation of the Southwestern Willow Flycatcher*. USDA Forest Service, Rocky Mountain Research Station. General Technical Report RMS-GTR-60.

Sogge, M. K. (2000). "Breeding season and ecology," *Status, ecology, and conservation of the southwestern willow flycatcher.* D. M. Finch and S. H. Stoleson, eds., General Technical Report RMRS-GTR-60. USDA, Forest Service, Rocky Mountain Research Station, Ogden, UT, 57-70.

REFERENCES

American Bird Conservancy (2000). Partners in Flight, Conservation of the Land Birds of the United States. pp.78-79.

Anderson, B. "Tamarisk, Revegetation and Riparian Ecosystems in the Southwest". *California Exotic Pest Council. 1995 Symposium. September 14, 2001.* http://www.caleppc.org/symposia/95symposium/anderson.html

Anderson, B. and Russell, P. (2000). Revegetation and Wildlife Center, Incorporated, River Mile 31 Revegetation Project: 2000, 98-PG-34-0138. pp.3-6.

State of Arizona Game and Fish Department (1997). Mittry Lake Wildlife Area Management Plan. pp. 10, 3, 4.

Arizona Game and Fish Department. In prep. Wildlife of special concern in Arizona. Ariz. Game and Fish Dept. Publication. Phoenix, Arizona.

Arizona Game and Fish Department. In prep. Wildlife of special concern in Arizona. Ariz. Game and Fish Dept. Publication. Phoenix, Arizona.

Conway, C.J., C. Sulzman, and B.E. Raulston. 2002. Population trends, distribution, and monitoring protocols for the California Black Rail. Unpub. report to Arizona Game and Fish Department.

Laymon, S. A. and M. D. Halterman (1989). A proposed habitat management plan for yellow-billed cuckoos in California. Proceedings of the California Riparian Systems Conference: protection, management, and restoration for the 1990s. D. L. Abell, Technical Coordinator. Berkeley, CA, Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture: 272-277.

Latta, M.J., C.J. Beardmore, and T.E. Corman. 1999. Arizona Partners in Flight Bird Conservation Plan. Version 1.0. Nongame and Endangered Wildlife Program Technical Report 142. Arizona Game and Fish Department, Phoenix, Arizona.

McDermott, B. Natural Resource Conservation Service. Personal Communication. Feburary, March 2002

McKernan, R. L. (1997). Status, distribution, and habitat affinities of the southwestern willow flycatcher along the lower Colorado river: year 1 - 1996. Redlands, California, San Bernardino County Museum.

McKernan, R. L. and G. Braden (1998). Status, distribution, and habitat affinities of the southwestern willow flycatcher along the lower Colorado river : year 2 - 1997. Redlands, California, San Bernardino County Museum.

McKernan, R. L. and G. Braden (1999). Status, distribution, and habitat affinities of the southwestern willow flycatcher along the lower Colorado river : year 3 - 1998. Redlands, California, San Bernardino County Museum.

McKernan, R. L. and G. Braden (2001). Status, distribution, and habitat affinities of the southwestern willow flycatcher along the lower Colorado river : year 4 - 1999. Redlands, California, San Bernardino County Museum.

McKernan, R. L. and G. Braden (2001). Status, distribution, and habitat affinities of the southwestern willow flycatcher along the lower Colorado river : year 5 - 2000. Redlands, California, San Bernardino County Museum.

McKernan, R. L. and G. Braden (2002). Status, distribution, and habitat affinities of the southwestern willow flycatcher along the lower Colorado river : year 6 - 2001. Redlands, California, San Bernardino County Museum.
Rappole, J. H. and D. W. Warner (1976). "*Relationships Between Behavior Physiology and Weather in Avian Transients At a Migration Stopover Site*." OECOLOGIA (Berlin) 26(3): 193-212.
Rosenberg, K. V., R. D. Ohmart, et al. (1991). Birds of the Lower Colorado River Valley. United States of America, University of Arizona Press.
Weisenborn, W. "Tamarisk Impacts on Salinity, Water, Fire Frequency and Flooding." *Tamarisk Management Workshop.* June 12, 1996. January 7, 2001. http://bluegoose.arw.r9fws.gov/NWRSFile...tMgmt/TamariskWorkshopJun96/Paper3.html
(1990). Arizona riparian-wetland area management strategy. p. 3.
(1998). Yuma/Havasu Fire Management Zone Fire Management Plan. pp.2, 22.
(1988). Riparian-wetland initiative for the 1990's. pp 15-17.
(2003) Mittry Fire C874 Burned Area Emergency Stabilization and Rehabilitation (ESR) Plan

Photo Point 1: Mesquite upland

Photo Point 2: Willow trees

Photo Point 3: Marsh view

Photo Point 4: Trees bordering marsh

Photo Point 5: Cottonwood trees

Photo Point 6: Cottonwood blow-down, resprout

Photo Point 7: Seep from canal

Photo Point 8: Cottonwood trees in marsh

Photo Point 9: Cottonwood mortality

Photo Point 10: Vigorous marsh regrowth

Photo Point 11: Upland, tamarisk and mesquite

Photo Point 12: Upland drainages, mesquite, and quailbush

Photo Point 13: North along canal and west of marsh

Photo Point 14: Wetland vegetation

Photo Point 15: Wetland vegetation within channel

Water Quality Monitoring Plan

Herbicide applied directly on vegetation growing by or near an aquatic habitat may create a potentially hazardous situation. Periodic water quality monitoring will be performed to insure that herbicide is not having a negative affect on surface waters in the project area. All water monitoring related to herbicide use shall adhere to the following procedures and protocol.

A. PRE-TREATMENT SAMPLING- Before treatment with herbicide is to occur, water samples will be collected above (control), at and below the treatment area. The location of the sample sites will be documented on a map of the project area for use in re-sampling. Bottles, gloves, and grab samplers will be clean and free of contaminants upon use. Sufficient quantity of water (.25-1L) will be collected at each site. Samples will be identified with water resistant marker and tracked in laboratory notebook and chain of custody record. Samples will be kept cool and immediately sent to appropriate laboratory analysis facility. They will be tested for active ingredient (AI).

B. TREATMENT AND POST TREATMENT SAMPLING – Water samples will be collected at the same location(s) selected for pre-treatment sampling. The initial sampling during the treatment period will occur when approximately ¼ to 1/3 of the treatment period has elapsed. The need for any subsequent sampling, for the remainder of the treatment period will depend on results of initial treatment sample. If test results indicate that levels of Active Ingredient (AI) or associated ingredients (e.g. petroleum distillates) in the aquatic habitat are approaching or at the levels that the manufacturer, state, or federal governments indicate as negatively impacting aquatic habitat, all herbicide applications being conducted near the aquatic habitat being monitored shall cease. Appropriate actions will be taken (see spill prevention plan). In this situation, subsequent sampling will be conducted at a minimum of every 15 days and immediately following a precipitation event, until concentrations fall significantly below harmful levels. Herbicide treatments will not resume during the treatment period until corrective measures have been employed to prevent re-contamination of the aquatic habitat. If necessary, a buffer zone of 100 feet will be established on all riparian/aquatic habitats being treated. If no concentrations or concentrations well within acceptable limits are detected, re-sampling will only occur towards the latter part of the treatment period.

Post treatment sampling will only be conducted if concentrations above acceptable limit are detected. Post-treatment sampling will continue, at a minimum of every 30 days until concentrations are determined to be at safe levels.